EFFECTIVENESS OF CHEMOTHERAPY COMPLICATION CONTROL PROTOCOL ON KNOWLEDGE AND SKILL AMONG CAREGIVERS OF CHILDREN WITH CANCER AT SELECTED HOSPITAL CHENNAI, 2013

DISSERTATION SUBMITTED TO

THE TAMIL NADU DR.M.G.R.MEDICAL UNIVERSITY

CHENNAI

IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE DEGREE

OF

MASTER OF SCIENCE IN NURSING

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LIST OF ABBREVIATIONS

WHO World Health Organization

NCI National Cancer Institute

CO Cancer Organization

ACS American Cancer Society

IJO Indian Journal of Oncology

ABSTRACT

Effectiveness of chemotherapy complication control protocol on knowledge and skill among caregivers of children with cancer at selected hospital, Chennai.

Children are the priceless treasures of tomorrow. A child diagnosed with cancer and undergoing chemotherapy treatment may be a heaviest burden for the parent. Education to the parents on care of child receiving cancer treatment helps in the overall improvement of wellbeing of the child. **Aims and objectives** The aims of this study were to determine the effectiveness of chemotherapy complication control protocol on knowledge and skill among caregivers of children with cancer. **Methodology** A quasi experimental pre test post test research design was adopted for the study.60 caregivers (30 each in experimental and 30 in control group) was assigned based on non probability purposive sampling technique. **Results** 30 caregivers in experimental group showed an improved post test mean score of 27.63 than in control group 11.57 with a t value of 17.706 at $p< 0.05$ level for knowledge score and for skill in experimental group 21.70 which was higher than in control group 8.80 with calculated t value 22.301 at $p< 0.05$ level. chemotherapy complication control protocol had an effect in enhancing the knowledge and skill among care givers of children with cancer

Key words *chemotherapy, chemotherapy complication control protocol, knowledge, skill, caregivers of cancer children.*

INTRODUCTION

Children are assets of future and symbol of promise through which we hold the world. They are being cared, guided by their parents. A child with cancer is one of the heaviest burden for the parent. The diagnosis and treatment alters the responsibility among mother and father, creates frustration which may extends over months and years. Globally it is been stated that about 11,630 children were been diagnosed as cancer in 2013 and nearly 1,310 children are expected to die of cancer. In India the cancer statistics is about 124 million and 1.6 to 4.8% of cases are reported below the age of 15 years specially females than males.

The children faces various problems during the treatment process and it is been estimated as the overall incidence of chemotherapy-induced hair loss is 65%,nausea and vomiting is approximately 29% while anticipatory vomiting appears to occur in 11%, oral mucositis is to be 40% in children receiving chemotherapy. The significance of the control and the complication encountered during the treatment process is higher, education to the caregivers regarding the management improves physical activity and distress among the children.

Thus, the investigator identified the felt needs of the caregivers during her visit to Cancer Institute, Adyar and thought if education is given on chemotherapy complication control measures their anxiety will be reduced and thus proceeded with the study.

Objective of the study

To assess the effectiveness of chemotherapy complication control protocol on knowledge and skill among caregivers of children with cancer.

Null hypotheses of the study

NH_1: There is no significant difference between the posttest level of knowledge and skill regarding chemotherapy complication control protocol between experimental and control group at $p< 0.05$ level.

The research process for this study was guided by the conceptual frame work based on Kenny's open system model.

METHODOLOGY

A quasi experimental design was used for the study. The independent variable for the study was chemotherapy complication control protocol and the dependent variable was the knowledge and skill on chemotherapy complication control protocol among caregivers of children with cancer .The study was conducted at the pediatrics unit of Cancer Institute, Adyar (WIA), which had 250 beds. The sample size comprised of 60 caregivers of children with cancer who fulfilled the inclusive criteria. Among 60 caregivers, 30 were in control group and 30 were in experimental group. Non probability purposive sampling technique was utilized to select the samples.

The data collection instrument was based on modified WHO guidelines for chemotherapy complication control measures. Video show and booklet on chemotherapy complication control measures and demonstration on skill - hand washing, ORS preparation, salt water gargle, checking temperature using digital thermometer in axilla, tepid sponging was shown to the caregivers. Structured knowledge questionnaire consisting of 40 questions on chemotherapy complication and its control measures and observation checklist for skill assessment was used in the study to assess the

effectiveness of chemotherapy complication control protocol for caregivers of children with cancer. Both descriptive and inferential statistics were used for data analysis.

RESULTS & DISCUSSION

The analysis revealed that the comparison of posttest mean score for knowledge in experimental group was 27.63 with S.D 4.71 and in control group the posttest mean score was 11.57 with S.D 1.59.The calculated unpaired 't' value of t = 17.706 was found to be statistically significant at $p < 0.001$ level.

The comparison of posttest mean score for skill in experimental group was 21.70 with S.D 2.53 and in control group the posttest mean score was 8.80 with S.D 1.90.The calculated unpaired 't' value of t = 22.301 was found to be statistically significant at $p < 0.001$ level.

Hence, the null hypotheses **NH_1** stated earlier that "There is no significant difference between the posttest level of knowledge and skill regarding chemotherapy complication control protocol between experimental and control group at $p < 0.05$ level was **rejected.**

This showed that the chemotherapy complication control protocol was effective in promotion of knowledge and skill regarding chemotherapy complication control measures among caregivers for children with cancer.

CONCLUSION

The present study assessed the effectiveness of chemotherapy complication control protocol on knowledge and skill among caregivers of children with cancer. On the basis of the above study findings, it is evident that the chemotherapy complication control protocol had a significant effect on enhancing the knowledge and skill among the caregivers. Hence, the chemotherapy complication control protocol can be utilized for the care givers of children with cancer to improve their knowledge and skill.

IMPLICATIONS

Caregivers of children with cancer may be motivated by the nurses to attend education program to update their knowledge through workshops. The nurses in the clinical area can make use of the media and AV aids to provide teaching to the caregivers of children with cancer regarding chemotherapy complication control measures management. Demonstration on skill related to chemotherapy complication control measures helps in improving the skill among caregivers of children with cancer and there by improves the quality of child care among cancer children by the caregivers.

CHAPTER – 1

INTRODUCTION

INTRODUCTION

Children are assets of future and symbol of promise through which we hold the world. Biologically a child is a human between the stages of birth and puberty. Globally children represent one third of total population. Hence safeguarding their health and wellbeing is a primary responsibility of the health care sector of all nations. Children are more prone for illness specially both communicable and non communicable diseases.

At the dawn of third century non communicable diseases are striking the entire children population leading to increased mortality and morbidity. Among the non communicable diseases like Cardio vascular disease, Diabetes Mellitus, Hypertension, Respiratory disease, Cancer is considered to be the fast spreading illness affecting the young children with increasing mortality in this millennium year.

Human body is made up of several organs like brain, lung, liver, stomach, etc and each organ is made up of cells. Cell division is the mainstay of human life. Cells divide for growth of an organ, repair damaged tissues and to maintain functions of the organ. Sometimes due to unknown factors, the cells divides abnormally i.e., their structure and function is not the same as that of its parent cells. These cells are termed as cancer. Next to cardiovascular diseases, cancer represent as the most frequent and lethal group of non communicable diseases. Leukemia is the most common malignancy reported in children less than 15 years of age. One of the highest causes of mortality and morbidity in children with neoplastic disease particularly those receiving chemotherapy are considered to be infections.

A child diagnosed with cancer is one of the heaviest burden for the parents who can ever be asked to carry. The shock of diagnosis, severity of treatment, altered responsibility of mother and father, frustration and ever present threats of loss of a child extends over months and years.

The burden of these conditions affects the countries worldwide and thus the goal of treatment includes cure the disease or considerably prolong life of the child with an improvement in total quality of life of the child.

1.1 BACKGROUND OF THE STUDY

Cancer is a chronic non communicable disease assuming importance among children and adult populations in both developed and developing countries. Cancer is regarded as a group of disease characterized by an abnormal growth of cells, ability to invade adjacent tissues and eventual death of a person when not treated. Cancer arises from one single cell. During the transformation from a normal cell into a cancer cell, they become abnormal and serve no useful purpose and harm normal body tissues and organs.

Cancer is been defined as the uncontrolled growth and spread of abnormal cells to surrounding tissues **National Cancer Institute (NCI, 2012)**.The global report states that the childhood cancer exceeds more than 80-85% in both the developed and developing countries. Globally it is been stated that about 11,630 children were been diagnosed as cancer in 2013 and nearly 1,310 children are expected to die of cancer in 2013 **Cancer Organization (CO, 2013)**.

Cancer exists as a common health problem worldwide and it is a large group of disease that can affect any part of the body. Childhood cancer tends to be the second most cause of death in recent years after accidents **Cancer Organization of American Cancer Society (ACS, 2000)**.

The report by American childhood cancer reveals that by 0 – 14 years of age majority 40% of the children are affected with leukemia, 27% are affected with brain cancer, 9% are affected with soft tissue cancer, 7% are affected with kidney,renal,pelvis and non hodkins lymphoma, 6% are affected with bone and joint cancer and 4% are affected with hodkin’s lymphoma.

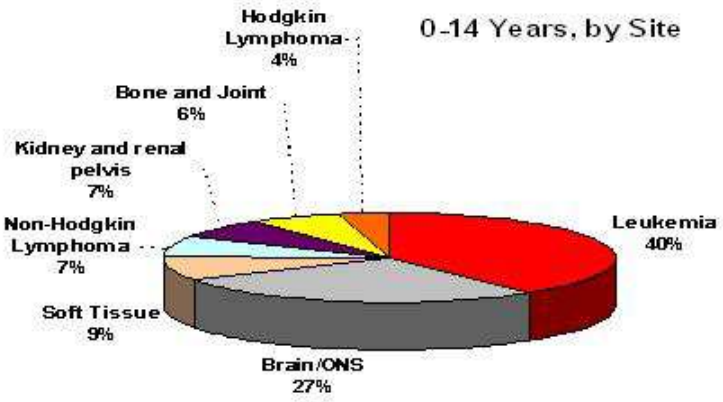


Fig 1 : Type of cancer by site with percentage of children 0 – 14 years of age group [American childhood cancer organization report (2012)]

A global report states that leukemia of the bone marrow and blood are the common childhood cancer among children which accounts for 34% globally **World Health Organization Report (WHO, 2012)**.

The world report states that nearly 1,600 children are diagnosed with cancer every year among South East Asian countries and the development of cancer cases is around 1: 500 children and the survival rate is around 5,600 until the age of 5 years following treatment **Cancer Research Report** and **World Health Organization (WHO, 2013)**.

In India the cancer statistics among children is about 124 million and 1.6 to 4.8% of cases are reported below the age of 15 years. It also been stated that there is an increased incidence of childhood cancer in India especially larger in females 44 – 76 % than males 12-27% **World Health Organization Report (WHO, 2013)**.

The incidence of childhood cancer in rural India accounts for 56million per year in boys and 46million per year in girls **Indian Journal of Oncology (IJO, 2012 - Population Based Cancer Registration).**The highest incidence 45% childhood cancer is reported in Chennai and Ahmadabad **Indian Journal of Oncology (IJO, 2013)**.

Treatment for childhood cancers are mainly based on the type and stage (extent) of the cancer. Treatment includes chemotherapy, surgery and radiation therapy. In many cases, more than one of these treatments is used and the initial treatment includes chemotherapy in all cases.

Chemotherapy is the use of medicines or drugs to treat cancer it is been called "chemo." Surgery and radiation therapy remove, kill, or damage cancer cells in a certain area, but chemo can work throughout the whole body. Chemo kills cancer cells that have metastasized or spread to parts of the body far away from the primary (original) tumor. **National Cancer Institute (NCI, 2012)**.

Globally it is been stated that about 70% of the children diagnosed with cancer receive chemotherapy as first line treatment **Cancer Organization Report (CO, 2012)**. It is stated that 40,000 – 80,000 of children diagnosed with cancer every year among South East Asian countries undergo cancer care treatment specially with chemotherapy and radiation therapy **World Health Organization (WHO, 2012)**.

In India**,** 50,000 children diagnosed with cancer undergo chemotherapy treatment at every cancer hospital in a year **Population Based Cancer Registration Report – 2011**.

In Tamilnadu, at Cancer Institute, Adyar, Chennai, on an average, yearly about 80 to 90 percentage of children undergo chemotherapy. The monthly percentage of children undergoing chemotherapy includes 80 - 100 children. Yearly more than 50,000 children undergo chemotherapy treatment.

A newspaper report states that 94% of death due to cancer occurs in low income countries and treating a single child needs a cost of 4 to 5 lakhs. In India due to lack of diagnosis and treatment facilities in the rural area 60,000 children are been affected annually **Indian express (22 Feb. 2013)**.

As cancer cells tend to grow fast and chemo drugs kills fast-growing cells these drugs can affect normal and healthy cells. Damage to healthy cells causes side effects. Side effects are not bad and it is also been included in the treatment process. The most

common side effects are result of damage to blood-forming cells in the bone marrow, hair follicles, and cells in the mouth, digestive tract and reproductive system. Some chemo drugs can damage cells in the heart, kidneys, bladder, lungs, and nervous system. In all the cases medicines and control measure strategies are given to protect the body normal cells.

The children faces various problems during the treatment process in all types of cancer treatment which includes chemotherapy, radiation therapy and surgical intervention. The side effects includes Anaemia, appetite changes, bleeding, constipation, diarrhoea, fatigue, hair loss, infection, mouth and throat changes, nausea and vomiting, skin and nail changes, neuro cognitive defects, sexual dysfunctions.

The overall incidence of chemotherapy-induced hair loss is estimated to be 65%.The prevalence and severity of this type of hair loss are variable and related to the selected chemotherapeutic agent and treatment protocol **Medscape Online Journal (2013)**.

The prevalence of anticipatory nausea and vomiting is approximately 29% of children receiving chemotherapy while anticipatory vomiting appears to occur in 11% of children. The incidence and severity of oral mucositis is estimated to be 40% in children treated with standard chemotherapy **National Cancer Institute (NCI, 2012)**.

The caregivers are the only hope for the children for maintenance of their physical, emotional, psychological aspects of their wellbeing and be as an constant support to enrich their life. caregivers are said to enrich their knowledge on the treatment complication to provide prompt care for the children. A report states that the caregivers should possess significant knowledge regarding the complication control measures to enhance child progress – **American Cancer Report 2013**.

1.2 SIGNIFICANCE AND NEED FOR THE STUDY

Chemotherapy is defined as "the treatment of disease by the use of chemical substances, especially the cytotoxic drugs." The word "chemotherapy" refers to cancer treatment, but the historical meaning is broader which refers to non-

oncological references antibiotics (antibacterial chemotherapy).Depending on the type of cancer, its stage chemo is been used to: cure the cancer, prevents from spreading, slow the cancer's growth, relieve symptoms caused by cancer.

The diagnosis of cancer in a child or teenager accounts to be an devastating blow to parents and other family members. Cancer creates an instant crisis in the family and there occurs a role change among all the members within the family. The impact of cancer on the family is usually heavy. Majority of the caregivers report the highest levels of depressive symptoms, strongest sense of abandonment. Feeling abandoned (a portion of caregiver burden) is more prevalent in female, non-spouse, and adult children caregivers, and adult children caregivers. Totally it is estimated that 75% of the caregivers tend to have physical and psychological burden with cancer children **American Cancer Society (2012)**.

As significance of the control rate, the complication and the impact on caregivers are higher during the treatment process, education to the caregivers regarding the management improves physical activity and distress among the child.

The Indian government has formulated **National Cancer Control Programme (1975 – 1976**) with the three main objectives:

- Primary prevention of cancer by health education
- Secondary prevention by screening
- Tertiary prevention by appropriate management

These objectives are also applicable for reducing the chemotherapy complication control burden among caregivers.

A review in **Journal of Children Oncology 2012** revealed that appropriate health education on chemotherapy complication among the caregiver improves the quality of life in children and it included the management for hairloss, nausea, vomiting, infection control, skin changes, pain, and loss of appetite.

Hileman sw, et al., (2010) conducted a longitudinal descriptive study in New Jersy,U.S.A to assess the knowledge among 500 caregivers on chemotherapy side effects and its management. The study tool involved structured questionnaires based on the

chemotherapy complications and the result concluded that nearly 60% of the caregivers had inadequate knowledge and admitted their children in hospital for minor ailments.

Brown SW, et al., (2010) conducted a retrospective study among 30 children with cancer in cancer hospital, Rome to analyze the high rate of infection. The study tool involved standardized observational checklist and the results revealed that nearly 75% of children showed cross infection in analysis and 60% of caretakers have poor hygienic practice in taking care of children with cancer.

McCaughan E, Parahoo K, (2010) conducted a descriptive study among 80 caregivers at selected hospital in India, regarding the level of perception and educational need in caring for children with cancer. The study tool involved structured interview schedule and the results revealed that 70% of the caregiver who cared for the children with a varied range of cancer had moderate level of competence and concluded with a recommendation of mass educational programme should be conducted to improve the caregivers competencies in care of cancer children.

Elison (2009) conducted an exploratory study among 200 caregivers of cancer children in Boston to assess the quality of child care. The study tool involved semi structured questionnaires and the results report revealed that 75% of child general health status directly depends on the caregivers care which increased their confidence level.

With all the above quoted studies and investigators personal experience during the visit to Cancer Institute Adyar, the investigator had come across the caregivers both in inpatient and outpatient unit, who were not aware of chemotherapy complication control measures. Thus, the investigator identified the felt need of the caregivers and thought if they have been educated, their burden will be reduced. This created an enthusiasm within the investigator to take up the study which in turn improves the caregivers quality outcome and assurance.

1.3 STATEMENT OF THE PROBLEM

A Quasi experimental study to assess the effectiveness of chemotherapy complication control protocol on knowledge and skill among caregivers of children with cancer at selected hospital, Chennai.

1.4 OBJECTIVES

1. To assess and compare the pretest and posttest level of knowledge and skill regarding chemotherapy complication control protocol among experimental and control group.
2. To assess the effectiveness of chemotherapy complication control protocol on knowledge and skill among caregivers of children with cancer.
3. To correlate the posttest level of knowledge with skill among experimental group.
4. To associate the selected demographic variables and mean differed score of knowledge and skill in experimental group.

1.5 OPERATIONAL DEFINITION

1.5.1 Effectiveness

It refers to the change in level of knowledge and skill regarding chemotherapy complication control protocol for caregivers of children with cancer which was assessed using structured knowledge questionnaires and observational check list based on modified WHO guidelines devised by the investigator respectively.

1.5.2 Chemotherapy Complication Control Protocol

It refers to set of information on chemotherapy complication control measures developed by the investigator for caregivers of children with cancer for managing side effects related to chemotherapy administration which comprises of 3 parts:

a) Resource material (booklet) on information regarding managing side effects of chemotherapy administration related to anemia, appetite changes, bleeding, constipation, diarrhea, fatigue, hair loss, infection, mouth and throat changes, nausea and vomiting, skin and nail changes
b) Video show on definition, uses, number of cycles and potential complications with management on chemotherapy complication control measures.

c) Demonstration of skills on hand washing, ORS preparation, salt water gargle, checking temperature using digital thermometer in axilla and application of tepid sponging.

1.5.3 Knowledge

It refers to the understanding and ability of the caregivers to answer questions regarding chemotherapy complication control protocol which was assessed by using structured knowledge questionnaire devised by the investigator.

1.5.4 Skill

It is the caregivers ability to demonstrate selected skill which includes:

S.No	Chemotherapy complication	Control measures
1.	Infection	Hand washing for 3 min.
2.	Diarrhoea	ORS preparation
3.	Sore mouth or throat	Salt water gargle for 5 min
4.	Fever	Checking temperature using digital thermometer in axilla. Tepid sponging (when temperature goes beyond100°f - 104°f) continues until temperature comes down.

1.5.5 Caregivers of Children with Cancer

The caregivers may be either mother, father or care taker within the family who takes care of a child diagnosed with cancer and receiving the 1st cycle of chemotherapy scheduled for one week.

1.6 ASSUMPTIONS

- The care givers of children with cancer may have some knowledge and skill regarding chemotherapy complication control measures.
- The chemotherapy complication control protocol may improve caregivers knowledge and skill regarding chemotherapy complication control measures.

1.7 NULL HYPOTHESES

NH_1: There is no significant difference between the post test level of knowledge and skill regarding chemotherapy complication control protocol between experimental and control group at $p< 0.05$ level.

NH_2: There is no significant relationship between the post test level of knowledge with skill among experimental group at $p< 0.05$ level.

NH_3: There is no significant association between the selected demographic variables with the mean differed level of knowledge and skill among experimental group at $p< 0.05$ level.

1.8 DELIMITATION

The study is delimited to a period of 4 weeks.

1.9 CONCEPTUAL FRAMEWORK

The study is based on **J.W Kenny's Open System Model (1999).**The researcher adopted Kenny's open system model for conceptual framework. This theory was introduced by Jennet W. Kenny. She was born in the year 1946 at Scotland. The open system model was formulated in the year 1999.The open system enumerates various aspects of system and interaction. She formulated various theories based on management.

The investigator applied Kenny's Open System Model in order to assess the effectiveness of chemotherapy complication control protocol on knowledge and skill among care givers of children with cancer. This involves interaction between the researcher and the caregivers of children with cancer.

An open system continuously interacts with its environment. The interaction takes the form of information which is transferred into or out of the system, depending on the discipline which defines the concept.

System theory is useful in breaking the whole process into sequential tasks to ensure goal realization. The three major aspects of the systems are:

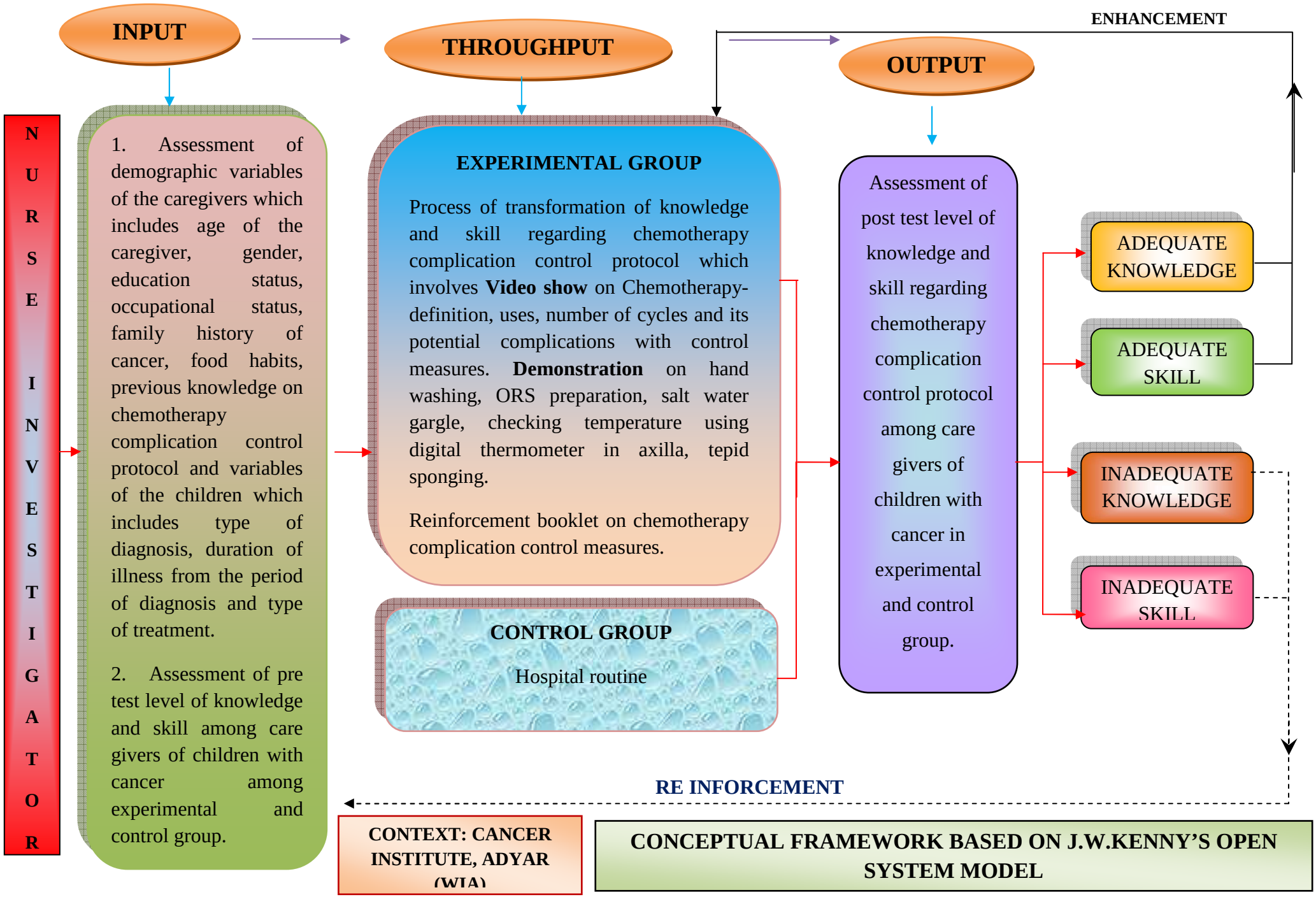
a) Input
b) Throughput
c) Output

Input is any type of information and material that enters the systems from environment through its boundaries. In this study it refers to pre assessment of demographic variables of the care givers, knowledge and skill regarding chemotherapy complication control protocol among caregivers of children with cancer by using structured questionnaire and observational check list.

Throughput is that any information or material that is given to the caregivers of children with cancer through video show on chemotherapy complication control protocol which includes definition, uses, number of cycles of chemotherapy and its potential complications with control measures and demonstration on hand washing, ORS preparation, salt water gargle, checking temperature using digital thermometer in axilla, tepid sponging. Booklet on chemotherapy complication control measures were given to the caregivers of children with cancer. In this study, the process includes the transformation of knowledge regarding chemotherapy complication control measures and skill training to the care givers of children with cancer.

Output is the information that leave the system, enters the environment through the system. In this study it refers to improved level of knowledge and skill level among care givers of children with cancer. The output is measured with structured questionnaire for knowledge assessment and observational check list for skill assessment.

Feedback is the achievement of goal or need and it is indicated by positive outcome that is attainment of adequate knowledge and skill attainment regarding chemotherapy complication control protocol and negative outcome is indicated by the inadequate knowledge and skill attainment regarding chemotherapy complication control measures which may be reinforced by further teaching. The feedback for the system depends on the output may be reinforcement or enhancement.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ENHANCEMENT
NURSE INVESTIGATOR
1. Assessment of demographic variables of the caregivers which includes age of the caregiver, gender, education status, occupational status, family history of cancer, food habits, previous knowledge on chemotherapy complication control protocol and variables of the children which includes type of diagnosis, duration of illness from the period of diagnosis and type of treatment.
2. Assessment of pre test level of knowledge and skill among care givers of children with cancer among experimental and control group.
EXPERIMENTAL GROUP
Process of transformation of knowledge and skill regarding chemotherapy complication control protocol which involves Video show on Chemotherapy- definition, uses, number of cycles and its potential complications with control measures. Demonstration on hand washing, ORS preparation, salt water gargle, checking temperature using digital thermometer in axilla, tepid sponging.
Reinforcement booklet on chemotherapy complication control measures.
CONTROL GROUP
Hospital routine
Assessment of post test level of knowledge and skill regarding chemotherapy complication control protocol among care givers of children with cancer in experimental and control group.
ADEQUATE KNOWLEDGE
ADEQUATE SKILL
INADEQUATE KNOWLEDGE
INADEQUATE SKILL
RE INFORCEMENT
CONTEXT: CANCER INSTITUTE, ADYAR (WIA)
CONCEPTUAL FRAMEWORK BASED ON J.W.KENNY'S OPEN SYSTEM MODEL

1.10 OUTLINE OF THE REPORT

CHAPTER 1: Dealt with the back ground of the study, need for the study, Statement of the problem, objectives, operational definitions, null hypotheses, assumptions, delimitations and conceptual frame work.

CHAPTER 2 : Focuses on review of literature related to the present study.

CHAPTER 3 : Enumerates the methodology of the study.

CHAPTER 4 : Presents the data analysis and data interpretation.

CHAPTER 5 : Deals with the discussion of the study

CHAPTER 6 Gives the summary, conclusion, implications, recommendations and limitations of the study.

The study report ends with selected References and Appendices.

CHAPTER – 2

REVIEW OF LITERATURE

REVIEW OF LITERATURE

This chapter deals with the related literature review which aids to generate a picture of what is known and not known about a particular situation. A literature review is an account of the previous efforts and achievements of scholar and researcher on a phenomenon.

According to **Geri LoBiondo-Wood, et al., (2011)** Review of literature is an organized critique of important scholarly literature which supports a study and a key step in research process. **American Nurses Association (2000)** states a literature review is a body of text that aims to review the critical point of knowledge on a particular topic of research

Review of literature entails systematic identification, selection and critical analysis of scholarly publications, unpublished scholarly print materials, audiovisual materials and personal communications to the problem of interest.

Hence an extensive review of literature was done by the investigator regarding chemotherapy complication control protocol. The logical sequence of the chapter is organized in the following sections:

SECTION-2.1: Scientific reviews related to complication of cancer treatment.

SECTION–2.2: Scientific reviews related to caregivers knowledge on chemotherapy administration.

SECTION–2.3: Scientific reviews related to managing side effects of chemotherapy treatment.

SECTION–2.4: Scientific reviews related to effectiveness of educational program on chemotherapy complication.

SECTION–2.1: SCIENTIFIC REVIEWS RELATED TO COMPLICATION OF CANCER TREATMENT

Rodgers C, Kollar D, Taylor O (2012) of Baylor College of Nursing, Texas Children Cancer Centre, Houston, USA conducted an exploratory study to assess the prevalence of chemotherapy induced nausea and vomiting among 40 cancer children. The study tool involved includes Rhodes index for nausea and vomiting. The results states that 65% of the children been frequently reported with nausea and vomiting throughout the treatment and thus recommended that nurses needs to be aware of the frequency, severity and distress among children with nausea and vomiting to implement appropriate intervention.

Miller G, et al., (2011) conducted a descriptive study to assess the prevalence of common symptoms among 40 children undergoing chemotherapy, diagnosed with cancer at children hospital, Texas. The tool used for the study includes observational checklist consisted of all common problems enlisted in it. The study revealed that 65% of the children had common symptoms of nausea, fatigue, decreased appetite and pain and concluded early identification of the symptoms improves the child wellbeing.

Breen M, et al., (2011) conducted an exploratory study among 30 cancer children at National Institute Denmark to assess the side effects faced by the children during cancer treatment. The tool used for the study includes structured questionnaires and observational checklist. The study revealed that 60% of the side effects of cancer treatment include fever, infection, gastrointestinal upset, altered body image and concluded with the report of managing the side effects should also be included in the cancer treatment.

Rheingans J, et al., (2010) conducted an case control trial among100 caregivers of children with cancer at selected cancer hospital, New Delhi to assess the most distressing symptoms reported by the children to the caregiver during chemotherapy administration and the effectiveness of educational programme to manage the side effects of chemotherapy treatment. The caregivers were divided into experimental (no:50) and control group (no:50) using convenience sampling technique. The study results revealed that in experimental group 70% of the children reported pain as the

common symptom and 75% in the control group reported GI upset as the common symptoms. The results on educational programme revealed 70% of the caregivers gained knowledge on side effects management thus concluded with a statement of frequent assessment on the child symptoms and education about the management improves the quality of life among cancer children.

William PD, et al., (2010) conducted a descriptive study among 100 children to assess the complication faced by the children during the chemotherapy treatment at Cancer Institute, New Delhi. The tool used to assess the symptoms includes observational checklist and structed interview schedule. The result concluded that most of the children 60% reported with oral changes, hair loss, pain and vomiting.

Beritbart W, et al., (2010) conducted an exploratory study to assess the prevalence of cancer related fatigue among 100 children at Weil Medical College Hospital, United States. The study tool involved standardized questionnaires and the result revealed that cancer related fatigue accounts for 90% of all the children undergoing chemotherapy treatment thus recommended with the development of effective management strategies to overcome the minor problems during chemotherapy treatment.

Carla C P Verstappan, (2010) conducted a descriptive study to assess the neurotoxic side effects of chemotherapy complication among 20 children diagnosed with cancer at California .The tool involved in the study includes diagnostic test and checklist. The result depicts that nearly 14% of the children experience peripheral neuropathy, central neurotoxicity and encephalopathy. The study concluded with a recommendation of development of neurological management during chemotherapy treatment.

Wolfgang J Kostler M.D, et al., (2010) conducted an exploratory study at to rule out the prevalence of oral mucositis related to chemotherapy and radiation therapy among 50 children at Texas medical hospital USA. The study involved oral mucositis assessment tool to rule out the prevalence rate of oral mucositis. The study concluded that 40% of the children treated with conventional chemotherapy and 70% of the children undergoing bone marrow transplantation experience oral mucositis and

recommended for the use of oral mouth wash solution to prevent the occurrence of the complication.

Sarah S, et al., (2010) conducted an exploratory study to assess the nutritional status with the impact of chemotherapy administration among 100 children surviving with cancer at Pune, India. The study revealed that 60% of children suffer from poor nutritional status as a result of anorexia, mucositis, nausea, vomiting and diarrhea. The study concluded with a recommendation to educate the caretaker on the nutrition source and supplements for the children during chemotherapy treatment.

Peter Mauch M D, et al., (2009) conducted a longitudinal for a period of 3 years study to evaluate the long term survival and treatment complication among 20 children with Hodgkin's disease at Joint cancer centre California. The results revealed that nearly 60% of the children reported with neurological complication, altered body images and thus concluded with an enhancement of cancer treatment side effect education programmes for all the cancer survivors and caretakers.

Handdy TB, et al., (2009) conducted a descriptive study among 300 cancer children, to assess the late effects of childhood chemotherapy treatment for acute leukemia at Washington, USA. The data collection tool involved standardized rating scales to assess the late effects and thus concluded that 20% of the children showed defective physical growth with cardiac abnormalities, hypertension, secondary neoplasm.

Chen CF, Wang R, (2008) and the department of nursing faculty conducted a descriptive study to assess the chemotherapy induced oral complication in children with cancer at Triservice general hospital, Taiwan among 30 cancer children. The study tool involved oral assessment guide (OAG).The study concluded that 90% of the children develop oral complication during the chemotherapy administration and thus recommended for the development of oral hygiene care regimen for the children undergoing chemotherapy treatment.

SECTION 2.2: SCIENTIFIC REVIEWS RELATED TO CAREGIVERS KNOWLEDGE CHEMOTHERAPY COMPLICATION.

Gibson, G, et al., (2012) conducted an exploratory study among 100 caregivers of cancer children at Cancer Hospital, New Jersey, to assess the knowledge on chemotherapy complication. The tool used involved structured knowledge questionnaires and the results revealed that nearly 45% of the caregivers, whose children were newly exposed to chemotherapy administration had low level of knowledge on chemotherapy complication. Thus the study recommended for the teaching programme to all caregivers on the side effect management during chemotherapy administration.

Creaton EM, et al., (2011) conducted a pre experimental study to assess the knowledge on chemotherapy complication and effectiveness of educational programme on management of chemotherapy complications among 50 inpatient caregivers in Boston. The data collection tool involved standardized knowledge questionnaires on chemotherapy complication and educational programme involves video show for 30min.Purposive sampling technique was used for the sample selection in the study. The study results revealed that in pretest 55% of the caregivers had inadequate knowledge and in posttest 70% of the caregivers had adequate knowledge, thus concluded that the educational programme should significant improvement in the caregivers knowledge regarding chemotherapy complication management.

McCaughan E, Parahoo K, (2010) conducted a descriptive study among 80 caregivers in the selected hospital at India, regarding the level of perception and educational need in caring for children with cancer. The study tool involved structured interview schedule and the results revealed that 70% of the caregiver who cared for the children with a varied range of cancer had moderate level of competence and concluded with a recommendation of mass educational programme should be conducted to improve the caregivers competencies in care of cancer children.

Kosgeroglu N, et al., (2010) conducted a descriptive study among 100 caregivers at Bhopal, India to determine the level of information possessed by the caregivers on chemotherapy administration and complication. The research tool involved semi structured interview schedule and the study findings revealed that 7.4% of the caregivers

had moderate knowledge on chemotherapy complication and received education on the chemotherapy administration through hospital workers.

Alptekin S, et al., (2010) conducted an exploratory study at Alaform hospital, Turkey to assess the quality of child care and knowledge chemotherapy among 50 caregivers of cancer children. The study tool involved questionnaires for the assessment of knowledge and rating scale to assess the quality of child care. The result revealed that 70% of the caregiver had moderate knowledge and were living with their children and supported them in their care giving process.30% had negative effects in the child care. The study recommends for the development of educational programme to enhance the caregivers knowledge on child wellbeing.

Shima S, et al., (2010) conducted an exploratory study to assess the knowledge on oral complication control measures among 20 caregivers of children with cancer at Bhopal India. The study tool involved standardized questionnaires on oral complication and care. The study result revealed that 65% of caregiver had moderate knowledge on oral hygiene and its complication. The study concluded with the enhancement of training programme to the caregivers in improvement the knowledge on oral complication control measures for cancer children.

SECTION–2.3: SCIENTIFIC REVIEWS RELATED TO MANAGING SIDE EFFECTS OF CHEMOTHERAPY TREATMENT.

Anaswamy ME, et al., (2012) conducted a pre experimental one group pretest posttest study to evaluate the effectiveness on hand hygiene skill among 40 caregivers of cancer children in selected hospital, India. The study involved the demonstration of hand washing techniques to the caregiver and assessment of their skill through standardized checklist. Convenient sampling technique was used in selection of study samples. The study results revealed that in posttest 75% of the caregivers gained moderately adequate skill on hand hygiene.

Anderson D, et al., (2012) conducted an experimental study to assess the effectiveness of ice chips treatment in prevention of oral mucositis among 80 children undergoing chemotherapy at Texas, USA. The sampling technique involved in the study

includes simple random sampling among which 40 children were been in experimental group and 40 in control group. The intervention included the pre assessment of oral mucosa and the application of ice chips treatment for the experimental group about 5 – 10 mins twice, daily for about one week during the chemotherapy treatment. The post assessment after a week revealed that 65% of the children showed healthy oral mucous without redness or other complication after ice chips treatment in the experimental group and thus concluded that ice chips treatment is effective in prevention of oral mucositis.

Paganini H et al., (2012) conducted an experimental study to assess the effectiveness of oral ciprofloxacin in reduction of febrile illness among 150 children undergoing cancer treatment at New Jersey, USA. The sampling technique involved in the study includes stratified random sampling among which 75 children were been assigned to experimental group and 75 of the children to the control group. The intervention included administration of oral ciprofloxacin during chemotherapy to the children in experimental group for 3 days. The study result revealed that at the end of 7^{th} day 80% of the children were not been presented with febrile illness and the study concluded with the standard use of ciprofloxacin during chemotherapy administration.

Kinlgren et al., (2012) conducted an exploratory study to assess the parental handling of fear among 30 caregivers of cancer children at Ukraine. The study tool involved structured interview schedule and the results revealed that 18% of the caregivers strive for the wellbeing of the child through their warmth care and support.

Hnang T, et al., (2011) stated the impact of exercise on health and physical function among children during and after treatment of cancer. The study included 15 intervention trials which suggested that children younger at the age of 15 years with cancer revealed positive health impact from the effect of exercise and showed improvement in cardio pulmonary fitness, muscle strength, reduced fatigue and improved physical function. The study concluded with the recommendation for the enhancement of exercise programme in hospital during cancer treatment.

Roberson E, et al., (2011) conducted a quasi experimental study to evaluate the effectiveness of salt water gargle on prevention of oral complication among 20 cancer children in India. Purposive sampling technique was used for sample selection in the

study. The intervention involved daily use of salt water gargle for twice three times a day among children undergoing chemotherapy in study group. The posttest result at the end of one week revealed that 75% of children receiving early saline gargle showed reduced risk of oral complication than in control group. The study concluded the enhancement of the salt water gargle for children during chemotherapy treatment.

Craig WJ, (2010) on 30th December in the Journal of Medical Oncology stated that vegetarian diet when approximately planned it can be nutritionally adequate for children and lower the risk of cancer and chronic diseases. Thus recommended with the enhancement of mass education on chemotherapy treatment to all caretakers of children with cancer for improvement of child wellbeing.

Shipway L, et al., (2010) on 2nd October in the Journal of pediatric Oncology stated that providing nutritional support for children during cancer treatment is essential as the children experience a diminished oral intake and exhibit subsequent weight loss and poor nutrition as a result of the side-effects of the treatment.

Morrison, et al., (2010) conducted an exploratory study to assess the level of knowledge among 30 caregivers on diarrheal management during chemotherapy administration in Columbia state hospital university, U.S.A. The tool involved in the study includes structured knowledge questionnaires on diarrhea and its management. The study findings revealed that 65% of the caregivers had inadequate knowledge and thus recommended for high level need to inpatient educational programme for the caregiver on general management on chemotherapy complication.

SECTION 2.4: SCIENTIFIC REVIEWS RELATED TO EFFECTIVENESS OF EDUCATIONAL PROGRAM ON CHEMOTHERAPY COMPLICATION.

Lakshanika, (2012) conducted a pre experimental study to assess the effectiveness of homecare management package on chemotherapy complication among caregivers of children with cancer. The study tool involved structured knowledge questionnaires and video show for the enhancement of caregivers knowledge. The sampling technique involved in the study includes purposive sampling technique. The

study results revealed that in the pretest 70% of the caregivers had inadequate knowledge and in posttest 85% of the caregiver had moderately adequate knowledge and thus concluded that homecare management package on chemotherapy complication was effective in improving the knowledge level among the caregivers. The study recommended the use of homecare educational package to enhance the caregivers knowledge on chemotherapy administration.

Hansson E, et al., (2012) conducted an exploratory study to assess the effectiveness of hospital health education programs among 30 families of cancer children in Denmark. The study tool involved standardized questionnaires and the result revealed that hospital health education enabled the families to gain upto date information on cancer treatment.

Rizalar S, et al., (2012) conducted a quasi experimental study, to assess the effectiveness of health education on personal and environmental protection among caregivers for the children undergoing chemotherapy in Turkey. 50 caregivers were been included in the study and divided into experimental and control group based on purposive sampling technique. The intervention comprises of pretest assessment of caregivers knowledge and health education to the caregivers in the experimental group. The study results revealed that 80% of the caregivers both in experimental and control group had inadequate knowledge in the pretest and the posttest results revealed that 75% of the caregivers had gained adequate knowledge and the study concluded with the use of health education package for enhancement of caregivers knowledge on chemotherapy administration.

Calisken Yilmaz Z, et al., (2010) conducted a quasi experimental study to investigate the effectiveness of educational program on helping caregivers to meet the needs of children undergoing cancer treatment. The study included 30 caregivers each in experimental and control group selected based on purposive sampling technique. The intervention tool involved video show on needs of cancer children and management of side-effects of chemotherapy. The results revealed that in the posttest nearly 65% of the caregivers showed significant improvement in perception of child need after the educational programme.

Sczony G, Maldeline, et al., (2010) conducted a pre experimental study to assess the effectiveness of mass educational programme on cancer treatment complication at National school of Nursing, New Jersey among 200 caregivers of cancer children. The study tool involved computer education to all the caregiver after their pretest knowledge assessment. The result revealed that 60% of the caregiver had inadequate knowledge during the pretest and 75% of the caregiver had moderately adequate knowledge on cancer treatment complication. The study concluded with the enhancement of more educational programme to the caregivers of cancer children.

Schroy PC, et al., (2010) conducted an exploratory study to assess the effectiveness of educational strategy for improving the knowledge and risk perception among 50 caregivers of cancer children in U.S.A. The study tool involved structured interview schedule and the result revealed that educational programme through video show showed 75% improvement in the knowledge among caregivers.

Wolf rober, et al., (2010) conducted an exploratory study in USA among 40 caregivers of children with cancer to study the impact of pediatric palliative care programme. The study tool comprises of interview schedule to assess the impact of palliative care programme. The study result suggested that 25% of the family suggested the programme was highly effective and satisfactory in improving their knowledge on palliative care.

Hendrix, et al., (2009) conducted an pre experimental study to determine the effectiveness of individualized care giver instruction for symptom management conducted at the bedside of children with cancer among 50 caregivers at North Carolina. The study result revealed that individualized bedside instruction booklet for caregivers was highly effective and thus recommended for the development of similar modules on various aspects of cancer care.

Trask C L Welch et al., (2009) conducted an exploratory study to among 100 caregivers to assess the effectiveness of educational program on the parental knowledge on neurocognitive late effects among children undergoing cancer treatment at Russia. The study tool involved structure knowledge questionnaires for the caregivers and the results revealed that nearly 75% of the caregiver had adequate knowledge as the result of educational programme.

CHAPTER – 3

RESEARCH METHODOLOGY

RESEARCH METHODOLOGY

The methodology is the significant part of any research study which enables the researcher to project a blue print of the research.

This chapter describes the methodology adopted for the study to assess the effectiveness of chemotherapy complication control protocol on knowledge and skill among caregivers of children with cancer at selected hospital, Chennai. This phase in the study includes the research design, variables, settings of the study, population, sample, inclusive and exclusive criteria for sample selection, sample size, sampling technique, development and description of the tool and plan for data analysis.

3.1 RESEARCH APPROACH

Quantitative research approach was applied for the study.

3.2 RESEARCH DESIGN

The research design adopted for this study was quasi experimental design. According to **Polit and Beck (2011)**, the design is quasi experimental, as the investigator incorporated an intervention with control group, but no randomization was been used as the availability of sample size is been limited.

GROUP	PRETEST (O_1)	INTERVENTION (X)	POST TEST (O_2) (At the end of 4th week)
Experimental group	Assessment of pre test level of knowledge and skill among caregivers of children with cancer.	Chemotherapy complication control protocol **(On the same day of pretest)**	Assessment of post test level of knowledge and skill among caregivers of children with cancer
Control group	Assessment of pre test level of knowledge and skill among caregivers of children with cancer.	Hospital routine	Assessment of post test level of knowledge and skill among caregivers of children with cancer

3.3 VARIABLES

3.3.1 Independent Variable

The independent variable used for the study was chemotherapy complication control protocol.

3.3.2 Dependent Variable

The dependant variable used for the study was knowledge and skill on chemotherapy complication control protocol among caregivers of children with cancer

3.3.3 Extraneous Variables

The extraneous variables of the caregivers included age of the care giver, gender, education status, occupational status, family history of cancer, food habits and previous knowledge on chemotherapy complication control protocol and variables of the children which includes type of diagnosis, duration of illness from the period of diagnosis and type of treatment.

3.4 SETTING OF THE STUDY

The study was conducted in Pediatric unit of Cancer Institute Adyar, which is a 250 bedded cancer speciality hospital located in Adyar. Cancer Institute, Adyar (WIA) is

an non- governmental organization specially developed for the care of cancer patients. The hospital has Medical, Surgical and Pediatric oncology units both in the main and the annex block. On an average, about 70 to 80 percentage of children undergo chemotherapy every month. The monthly inpatient census includes 80 - 100 children undergoing chemotherapy and radiation therapy. The daily admission includes 10 – 12 children for chemotherapy treatment. The daily census in the month of May was in 4 – 5 children and the monthly census includes 60 children out of which 35 were newly diagnosed with cancer.

3.5 POPULATION

3.5.1 Target population

The study population includes all caregivers of children with cancer undergoing chemotherapy treatment.

3.5.2 Accessible population

All caregivers of children with cancer who were seeking 1st cycle of chemotherapy treatment at Cancer Institute, Adyar (WIA).

3.6 SAMPLE

The caregivers of children with cancer who satisfied the sample selection criteria were included in the study.

3.7 SAMPLE SIZE

The study sample comprised of 60 caregivers of children with cancer who fulfilled the inclusive criteria. Among 60 caregivers, 30 were in control group and 30 were in experimental group.

3.8 CRITERIA FOR SAMPLE SELECTION

Inclusion criteria

1. Caregivers of children with cancer who are willing to participate in the study.
2. Caregivers of children with cancer in 1st cycle of chemotherapy and has one week interval for the next cycle.
3. Caregivers of children with cancer diagnosed within 6 months.
4. Caregivers of children with cancer who can understand Tamil or English.

Exclusion criteria

1. Caregivers of children with cancer who have attended any educational program on cancer complication control protocol within 6 months.
2. Caregivers who have hearing and speech impairment.

3.9 SAMPLING TECHNIQUE

Non probability purposive sampling technique was used for the selection of samples for the study.

3.10 DEVELOPMENT AND DESCRIPTION OF TOOL

After an extensive review of literature, discussion with experts and with the investigator's personal and professional experience, a structured knowledge questionnaire was developed to assess the knowledge and observational check list to assess the skill based on WHO guidelines was constructed as a tool for the study.

The tool constructed in the study consists of two parts:

3.10.1 PART A: DATA COLLECTION TOOL

3.10.2 PART B: INTERVENTION TOOL

3.10.1 PART A

SECTION – 1

It consisted of demographic variables of the caregivers which include age of the care giver, gender, education status, occupational status, family history of cancer, food habits, previous knowledge on chemotherapy complication control protocol and demographic variables of the children which include type of diagnosis, duration of illness from the period of diagnosis and type of treatment.

SECTION - 2

This section consisted of structured knowledge questionnaires to assess the caregivers knowledge on chemotherapy complication control measures

Structured knowledge questionnaires consisted of 40 multiple choice questions formulated under the following headings

A) Chemotherapy Complication (20 questions)

B) Chemotherapy Complication Control Measures (20 questions)

Scoring key

Each item was a closed ended multiple choice questions with single correct answer. Each correct response was awarded with a score of 1 mark and the wrong question was awarded with a score of '0'mark. Total score was 40. Maximum score was 40 and minimum score was '0'.

Score	Interpretation
>75	Adequate knowledge
51-75	Moderately adequate knowledge
≤ 50	Inadequate knowledge

SECTION – 3

This section consisted of the observational checklist to assess the skill of the caregivers of children with cancer

The observational checklist items were listed as follows

S.No.	Items (chemotherapy complication)	Control measures
1.	Infection	Hand washing – 7 steps
2.	Diarrhea	ORS preparation – 7 steps
3.	Oral ulcer	Salt water gargle – 7 steps
4.	Fever	Checking temperature using digital thermometer in axilla Tepid sponging – 7 steps

Scoring key

Each step performed were given a score of 1 and not performed were given a score of '0'. Hence the maximum score was 28, minimum score was '0'.The raw score was converted to percentage to interpret the level of skill.

Score	Interpretation
>75	Adequate skill
51-75	Moderately adequate skill
≤ 50	Needs skill improvement

3.10.2 PART – B

SECTION - 1

Intervention protocol consisted of specific teaching programme structured by the investigator using multimedia package and booklets to impart the knowledge regarding chemotherapy complication control protocol.

Knowledge: Education through power point teaching, lecture cum discussion for 15 min and the content focuses on

- Chemotherapy definition, uses, number of cycles and its potential complications and its control measures: Anemia, appetite changes, bleeding, constipation, diarrhea, fatigue, hair loss, infection, mouth and throat changes, nausea and vomiting, skin and nail changes and its control measures.

Skill: Demonstration and training on following skill for 30 min

- Hand washing, ORS preparation, Salt water gargle, Checking temperature using digital thermometer in axilla, Tepid sponging.
- Reinforcement was carried out by issuing booklets on Chemotherapy Complication Control Protocol.

3.11 CONTENT VALIDITY

The content validity of the data collection and intervention tool was obtained from the expert's opinion in the following field of expertise.

Oncologist	-1
Paediatric intensivist	-1
Paediatrician	-1
Nursing expert	-3

Modification were made as per the expert's suggestions and incorporated in the tool.

3.12 ETHICAL CONSIDERATION

The research study was approved by the Institution Ethics Review Board (IERB) held on December 2012 by the International Centre for Collaborative Research (ICCR) of Omayal Achi College of Nursing.

The ethical principle followed in the study were

I Beneficiaries

1. Freedom from harm & discomfort

Participants were not subjected to unnecessary risks for harm and discomfort during the study period.

2. Protection from exploitation

Participants were assured that their participation or information they provided would not be used against them in any way.

II Respect for human dignity

Participants were given full rights to ask questions, refuse to give information and also to with draw from the study at any point of time.

A written consent was obtained from the participants initially for their willingness to participate in the study.

III Justice

The selection of study participants was completely based on research requirements. A full privacy was maintained throughout the process of data collection.

1V Confidentiality

The investigator maintained confidentiality of the data provided by the study participants through individual coding for each participants.

3.13 RELIABILITY

The reliability of the tool was established by Test-Retest method for knowledge questionnaires and Inter rater for skill assessment by observational check list. The reliability score was r = 0.803 for knowledge and r= 0.621 for skill assessments which was assessed by using Karl Pearson's Correlation method. The 'r' value indicated that the tool shows highly positive correlation for knowledge and moderately positive correlation for skill. Hence the tool was considered highly reliable for proceeding with the main study.

3.14 PILOT STUDY

The pilot study was conducted at Pediatric unit of Cancer Institute, Adyar (WIA) for a period of one week after getting formal permission from the Principal, Omayal Achi College of Nursing and Ethical clearance was obtained from International Centre for Collaborative Research and Medical and the Nursing Director of the Cancer Institute, Adyar. The pilot study was conducted from 1-2-13 to 8-2-13.

Self introduction about the investigator and information regarding the nature of the study was explained to the caregivers to gain co-operation in the procedure of data collection. Privacy and confidentiality was maintained during the process of data collection. The investigator selected 20 care givers (10 each in control group and 10 each in experimental group) who fulfilled the sample selection criteria using non-probability purposive sampling technique.

At first, the investigator collected data from the caregivers in control group,10 samples who were gathered in a well ventilated hall with good seating arrangement organized by the investigator through hospital authority. After obtaining written consent, the demographic variables were collected and the pretest knowledge questionnaire was administered. Each sample took 15 minutes to answer the knowledge questionnaires after which skill assessment on hand washing, ORS preparation, salt water gargle and checking temperature using digital thermometer in axilla, tepid sponging. The total hours of completion of all the four skills by the caregivers was one hour and each caregiver took 5 – 6 minutes to complete the four different skills which was assessed by using observational checklist based on WHO guidelines. The post test was conducted after 3 days without giving any intervention.

On fourth day the investigator gathered experimental group, 10 samples in a well ventilated hall with good seating arrangement organized by the investigator through hospital authority. After obtaining written consent, the demographic variables were collected and the pretest knowledge questionnaire was administered. Each sample took 15 minutes to answer the knowledge questionnaires after which lecture was given on chemotherapy complication control measures using video show for 15 minutes. Demonstration was done on skill for 30 min for the caregivers. The first skill was on hand washing , second was on ORS preparation, third was on salt water gargle and

fourth was on checking temperature using digital thermometer in axilla, tepid sponging. For the re- inforcement purpose the investigator gave booklet to all the caregivers, which contains the overview of chemotherapy complication control protocol.

After 3 days the caregivers in the experimental group was gathered in the same hall and post test was carried out with the structured knowledge questionnaire. Each sample took 15 minutes to answer the question and the demonstration on skill was carried out. The articles for demonstration of skill were arranged in two sets in the hall. All caregiver were asked to come one by one demonstrate the skill individually one after the other by themselves.

When the first caregiver started and completed the first skill hand washing and moved to salt water gargle, the second person started with hand washing and after completion of the skill by second person the third person started with hand washing and caregivers moved consequently after completion of one skill to another. The total hours of completion of all the four skill by the caregivers was one hours and each caregiver took 5 – 6 minutes to complete the four different skill which was assessed by using observational checklist, based on WHO guidelines.

3.15 PROCEDURE FOR DATA COLLECTION

A written formal permission was obtained from the Principal, Omayal Achi College of Nursing, Ethical clearance was obtained from International Centre for Collaborative Research and prior written permission was obtained from the Nursing Director of Cancer Institute, Adyar (WIA).

The research study was conducted in the month of May 2013. Self introduction about the investigator and information regarding the nature of the study was explained to the selected samples so as to promote their full participation. The investigator obtained informed consent from the study participants and they were reassured regarding confidentiality of their data. Privacy and confidentiality was maintained throughout the data collection process and the data was collected for a period of four weeks.

The investigator selected 60 samples (caregivers) from Pediatric Cancer Unit, Adyar (WIA) for participating in the study who fulfilled the sample selection criteria using non probability purposive sampling method, 30 caregivers were taken as control group and 30 caregivers were taken as experimental group from In-Patient Pediatric cancer ward.

On first week, the investigator collected data from the caregivers in control group 30 samples who were gathered in a well ventilated hall with good seating arrangement organized by the investigator through hospital authority. After obtaining written consent, the demographic variables were collected and the pretest knowledge questionnaire was administered. Each sample took 15 minutes to answer the knowledge questionnaires after which skill assessment on hand washing, ORS preparation, salt water gargle and checking temperature using digital thermometer in axilla, tepid sponging. The total hours of completion of all the four skills by the caregivers was two and half hours and each caregiver took 6 - 7 minutes to complete the four different skill which was assessed by using observational checklist based on WHO guidelines. The post test was conducted after one week without giving any intervention.

After a week the investigator gathered experimental group 30 samples in well ventilated hall with good seating arrangement organized by the investigator through hospital authority. After obtaining written consent, the demographic variables were collected and the pretest knowledge questionnaire was administered. Each sample took 15 minutes to answer the knowledge questionnaires after which lecture was given on chemotherapy complication control measures using video show for 15 minutes.

Demonstration was done on four skills for 30 min for the caregivers. The first skill was on hand washing , second was on ORS preparation, third was on salt water gargle and fourth was on checking temperature using digital thermometer in axilla, tepid sponging and also for return demonstration the articles were been arranged in two sets and each care giver took 6 – 7 mins to complete the return demonstration. For the re- inforcement purpose the researcher gave booklet to all the caregivers, which contains the overview of chemotherapy complication control protocol.

After a week the investigator gathered experimental group (no 30) in well ventilated hall with good seating arrangement organized by the investigator through hospital authority. The post test knowledge questionnaire was administered. Each sample took 15 minutes to answer the question and the demonstration on four skills was carried out. The articles for demonstration of four skills were arranged in two sets in the hall. All caregiver were asked to come one by one demonstrate the skill individually one after the other by themselves.

when the first caregiver started and completed the first skill hand washing and moved to salt water gargle, the second person started with hand washing and after completion of the skill by second person the third person started with hand washing and caregivers moved consequently after completion of one skill to another. The total hours of completion of all the four skill by the caregivers was two and half hours and each caregiver took 6 - 7 minutes to complete the four different skill which was assessed by using observational checklist, which was based on WHO guidelines.

3.16 PLAN FOR DATA ANALYSIS

Data was analyzed by using both descriptive and inferential statistics.

DESCRIPTIVE STATISTICS

1. Frequency and percentage distribution was used to analyze the demographic variables.
2. Mean and standard deviation was used to assess the pre test and post test level of knowledge with skills regarding chemotherapy complication control protocol among study and control group.

INFERENTIAL STATISTICS

1. Paired and Unparied ‘t’ test was used to assess and compare the effectiveness of pre and post test level of knowledge and skill among experimental and control group.
2. Co-relation coefficient was used to assess the correlation of effectiveness post test level of knowledge with skill among experimental group.

3. One way ANOVA was used to find out the association of mean differed level of knowledge and skill with selected demographic variables in the experimental group.

SCHEMATIC REPRESENTATION FOR RESEARCH METHODOLOGY

TARGET POPULATION

The study population included all caregivers of children with cancer undergoing chemotherapy treatment

↓

ACCESSIBLE POPULATION

All caregivers of children with cancer who are undergoing 1st cycle of chemotherapy treatment in Pediatric Unit, Cancer Institute, Adyar

↓

DESIGN

Quasi Experimental Research Design

↓

METHOD OF DATA COLLECTION

The caregivers who fulfilled the inclusive criteria were the samples of the study

↓

SAMPLING

Non probability purposive sampling technique was used in sample selection

↓

EXPERIMENTAL GROUP (n=30)

↓

PRETEST

Assessment of knowledge and skill on chemotherapy complication control protocol

↓

INTERVENTION

Chemotherapy complication control protocol Education through video cum discussion, Powerpoint presentation and demonstration of skill and return demonstration by caregivers of cancer children and reinforcement booklet was issued

↓

POST TEST

Assessment of knowledge and skill on chemotherapy complication control protocol

↓

CONTROL GROUP (n=30)

↓

PRETEST

Assessment of knowledge and skill on chemotherapy complication control protocol

↓

POST TEST

Assessment of knowledge and skill on chemotherapy complication control protocol

↓

Wait list

↓

After the posttest the intervention chemotherapy complication control protocol was explained to the control group, booklets was issued

↓

DATA ANALYSIS AND INTERPRETATION

CHAPTER – 4
DATA ANALYSIS AND INTERPRETATION

DATA ANALYSIS AND INTERPRETATION

The analysis is a process of organizing and synthesizing the data in such a way that the research question can be answered and hypotheses are tested **(Polit and Hungler, 2011)**

This chapter deals with analysis and interpretation of data collected from 60 Caregivers of children with cancer at Cancer Institute, Adyar to assess the effectiveness of chemotherapy complication control protocol on knowledge and skill among care givers of children with cancer. Statistical analysis is the method for rendering quantitative information meaningful and tangible. This enables the researcher to summarize, organize, evaluate, interpret and communicate numeric information.

The data collected for the study was grouped and analyzed as per the objectives set for the study. The findings have been tabulated and interpreted according to plan for data analysis. Data analysis includes both descriptive and inferential statistics.

ORGANIZATION OF DATA

The data has been grouped, tabulated and organized below as follows:

SECTION 4.1: Description of demographic variables of the caregivers of children with Cancer.

SECTION 4.2: Assessment of the pre test and post test level of knowledge and skill on Chemotherapy complication control protocol among caregivers of Children with cancer in experimental and control group.

SECTION 4.3: Assessment of effectiveness of chemotherapy complication control Protocol on level of knowledge and skill among caregivers of Children with cancer.

SECTION 4.4: Correlation between post test level of knowledge score with skill scores regarding chemotherapy complication control protocol among Caregivers of children with cancer in experimental group.

SECTION 4.5: Association of the selected demographic variables with mean differed Knowledge score regarding chemotherapy complication control Protocol in the experimental group.

SECTION 4.6: Association of the selected demographic variables with mean differed Skill score regarding chemotherapy complication control protocol in the Experimental group.

SECTION 4.1: DESCRIPTION OF DEMOGRAPHIC VARIABLES OF THE CAREGIVERS OF CHILDREN WITH CANCER.

Table 4.1.1 : Frequency and percentage distribution of demographic variables of caregivers of children with cancer in experimental and control group with respect to age, sex, educational status.

N = 60

S.No.	Demographic Variables	Experimental group (n = 30)		Control group (n = 30)	
		No.	%	No.	%
1.	**Age of the caregivers**				
	20-25 years	9	30.00	7	23.33
	26-30 years	9	30.00	**17**	**56.67**
	31-35 years	**12**	**40.00**	6	20.00
	36-40 years	0	0.00	0	0.00
	>40 years	0	0.00	0	0.00
2.	**Gender**				
	Male	0	0.00	0	0.00
	Female	**30**	**100.00**	**30**	**100.00**
3.	**Educational status**				
	Non – literate	8	26.67	5	16.67
	Primary education	**10**	**33.33**	10	33.33
	High school education	7	23.33	**12**	**40.00**
	Higher secondary education	5	16.67	3	10.00
	Diploma	0	0.00	0	0.00
	Graduate and above	0	0.00	0	0.00

Table 4.1.1 describes the frequency and percentage distribution of demographic variables of caregivers of children with cancer in the experimental and control group with respect to age, sex, educational status.

With regard to age in years 12(40%) belongs to 31 – 35years in experimental and17 (56.67%) belongs to 26 – 30 years in control group

With regard to sex majority 30(100%) belongs to female both in experimental and control group

With regard to educational status in the experimental group, 10(33.33%) had done primary education and in control group 12 (40%) had done high school education.

Table 4.1.2: Frequency and percentage distribution of demographic variables of caregivers of children with cancer in the experimental and control group with respect to occupation, family history of cancer and food habits.

N = 60

S.No.	Demographic Variables	Experimental group (n = 30)		Control group (n = 30)	
		No.	%	No.	%
1.	**Occupational status**				
	Unskilled	7	23.33	9	30.00
	Semi skilled	**21**	**70.00**	**20**	**66.67**
	Skilled	2	6.67	1	3.33
	Professional	0	0.00	0	0.00
	Others	0	0.00	0	0.00
2.	**Family history of cancer**				
	Yes	0	0.00	0	0.00
	No	**30**	**100.00**	**30**	**100.00**
3.	**Food habits**				
	Vegetarian	**15**	**50.00**	7	23.33
	Non vegetarian	10	33.33	**17**	**56.67**
	Ova vegetarian	5	16.67	6	20

Table 4.1.2 describes the frequency and percentage distribution of demographic variables of caregivers of children with cancer in the experimental and control group with respect to occupational status, family history of cancer, food habits.

With regard to occupational status both in the experimental and control group, 21(70%), 20(66.67%) were semi skilled.

With regard to family history of cancer, majority 30(100%) did not had any family history of cancer both in experimental and control group.

With regard to food habits in the experimental group, 15(50%) were vegetarian and in control group 17(56.67%) were vegetarian.

Table 4.1.3: Frequency and percentage distribution of demographic variables of caregivers of children with cancer in the experimental and control group with respect to previous knowledge on chemotherapy complication control protocol, type of diagnosis, duration of illness from the period of diagnosis, type of treatment.

N = 60

S.No,	Demographic variables	Experimental group (n = 30)		Control group (n = 30)	
		No.	**%**	**No.**	**%**
1.	**Previous knowledge on chemotherapy complication control protocol**				
	Yes	0	0.00	0	0.00
	No	**30**	**100.00**	**30**	**100.00**
2.	**Type of diagnosis**				
	Lymphoma	0	0.00	0	0.00
	Myeloma	0	0.00	0	0.00
	Leukemia	**30**	**100.00**	**30**	**100.00**
	Others	0	0.00	0	0.00
3.	**Duration of illness from the period of diagnosis**				
	1 - 3 month	**30**	**100.00**	**30**	**100.00**
	4 - 6 month	0	0.00	0	0.00
4.	**Type of treatment**				
	Chemotherapy	**30**	**100.00**	**30**	**100.00**
	Both chemotherapy and radiation therapy	0	0.00	0	0.00
		0	0.00	0	0.00
	Others	0	0.00	0	0.00

Table 4.1.3 describes the frequency and percentage distribution of demographic variables of caregivers of children with cancer in the experimental and control group with respect to type of diagnosis, duration of illness from the period of diagnosis, type of treatment.

With regard to previous knowledge on chemotherapy complication control protocol majority 60(100%) all the caregivers were not been aware of chemotherapy complication both in experimental and control group.

With regard to type of diagnosis majority 60(100%) all the children were having leukemia both in experimental and control group.

With regard to duration of illness from the period of diagnosis majority 60(100%) all the children were been diagnosed with cancer within 1- 3 months both experimental and control group.

With regard to type of treatment, majority 60(100%) all the children were been receiving chemotherapy both in experimental and control group.

SECTION 4.2: ASSESSMENT OF THE PRE TEST AND POST TEST LEVEL OF KNOWLEDGE AND SKILL ON CHEMOTHERAPY COMPLICATION CONTROL PROTOCOL AMONG CAREGIVERS OF CHILDREN WITH CANCER IN EXPERIMENTAL AND CONTROL GROUP.

n = 30

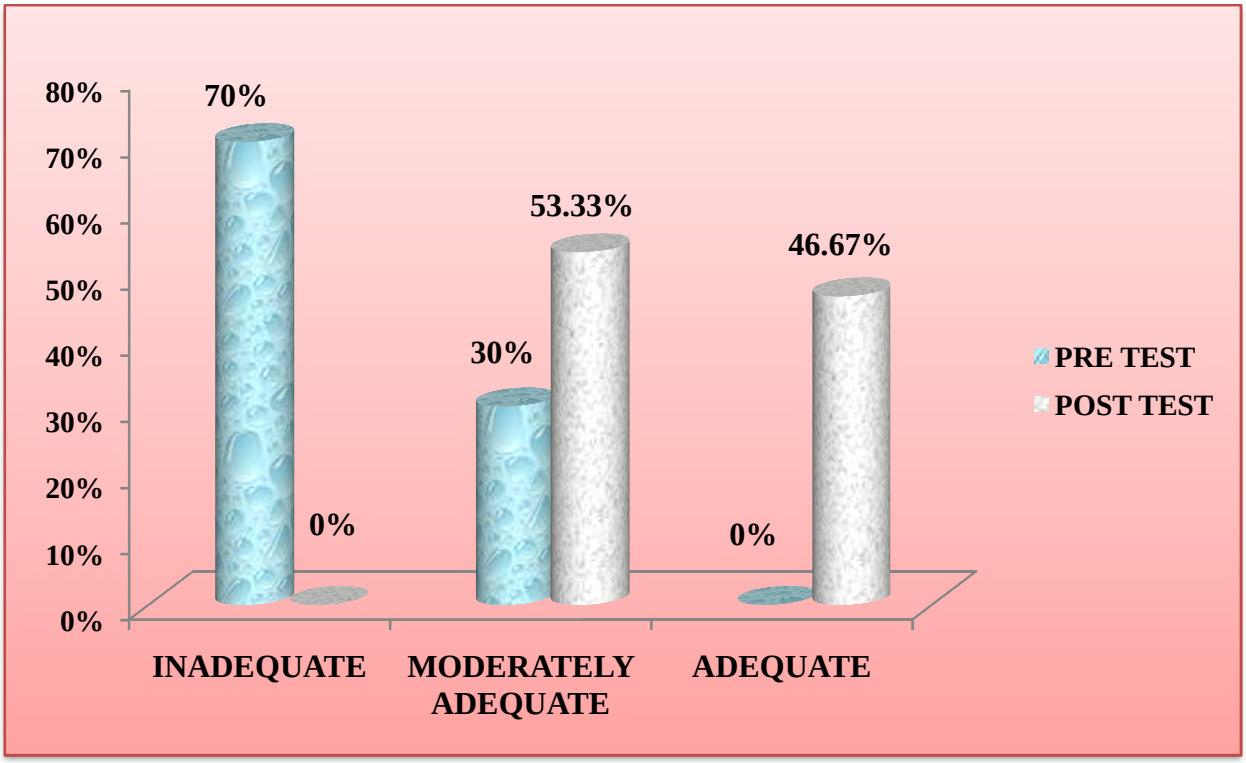

Fig 4.2.1: Percentage distribution of pretest and post test level of knowledge regarding chemotherapy complication control protocol in experimental group.

Fig.4.2.1 reveals that, with regard to knowledge assessment in the pretest, majority 21(70%) had inadequate knowledge, 9(30%) had moderately adequate knowledge and in the posttest, majority 16(53.33%) had moderately adequate knowledge and 14(46.67%) had adequate knowledge in experimental group.

n = 30

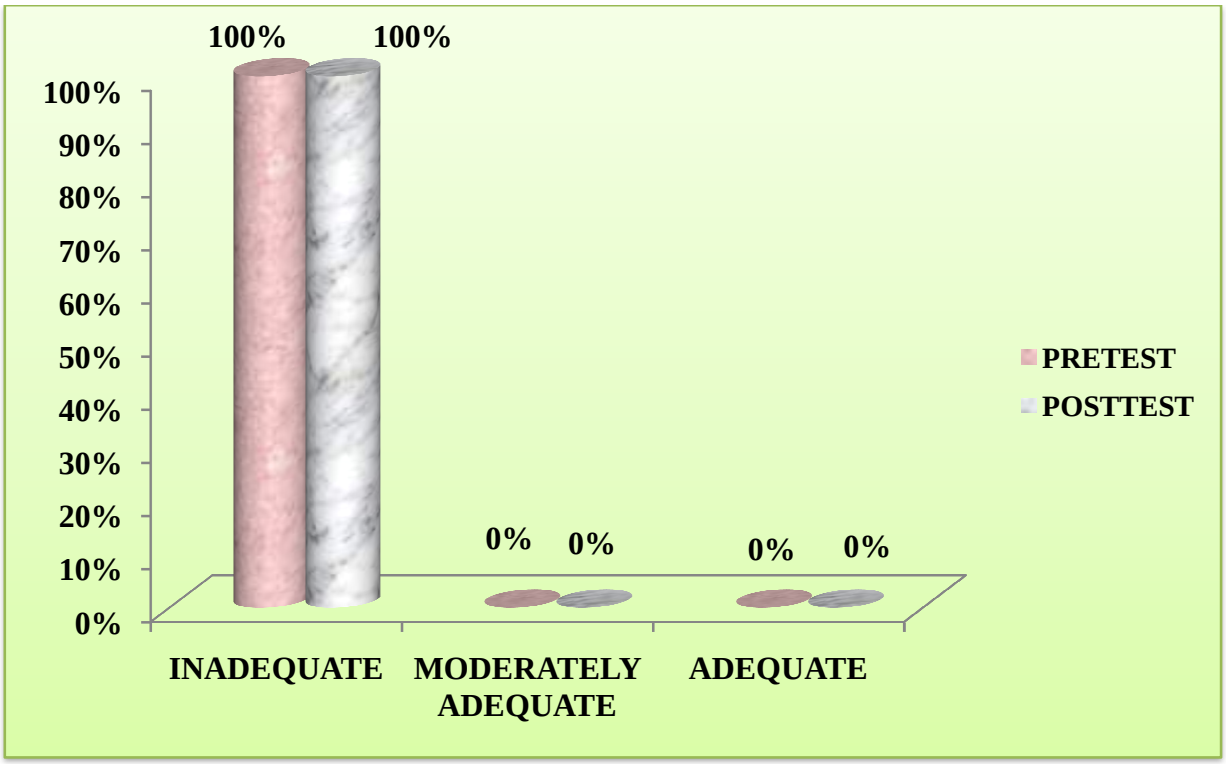

Fig.4.2.2: Percentage distribution of pretest and post test level of knowledge regarding chemotherapy complication control protocol in control group.

Fig 4.2.2 reveals that, with regard to knowledge assessment both in the pretest and posttest majority 30(100%) had inadequate knowledge in control group.

n = 30

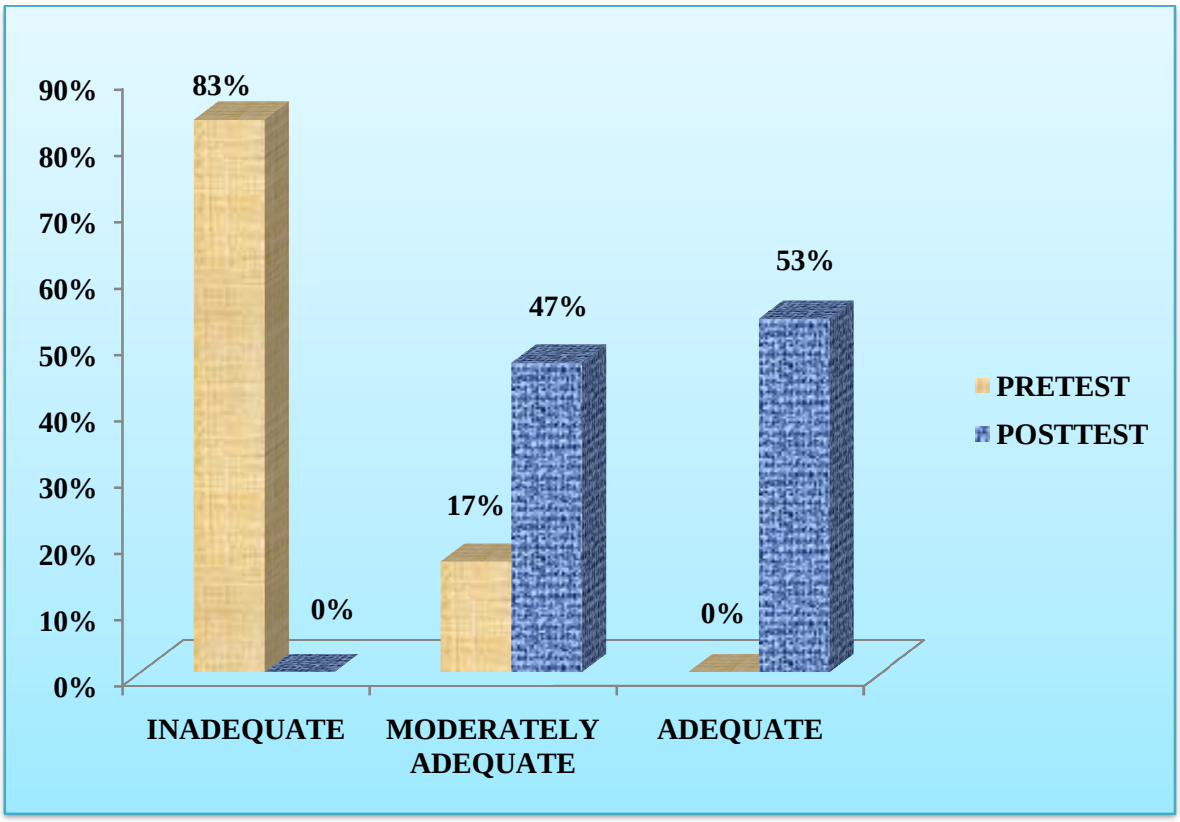

Fig.4.2.3: Percentage distribution of pretest and post test level of skill regarding chemotherapy complication control protocol in experimental group.

Fig 4.2.3 reveals that, with regard to skill assessment in the pretest, majority 25(83.33%) had inadequate skill, 5(16.67%) had moderately adequate skill and in post test, majority 14(46.67%) had moderately adequate skill, 16(53.33%) had adequate skill in experimental group.

n = 30

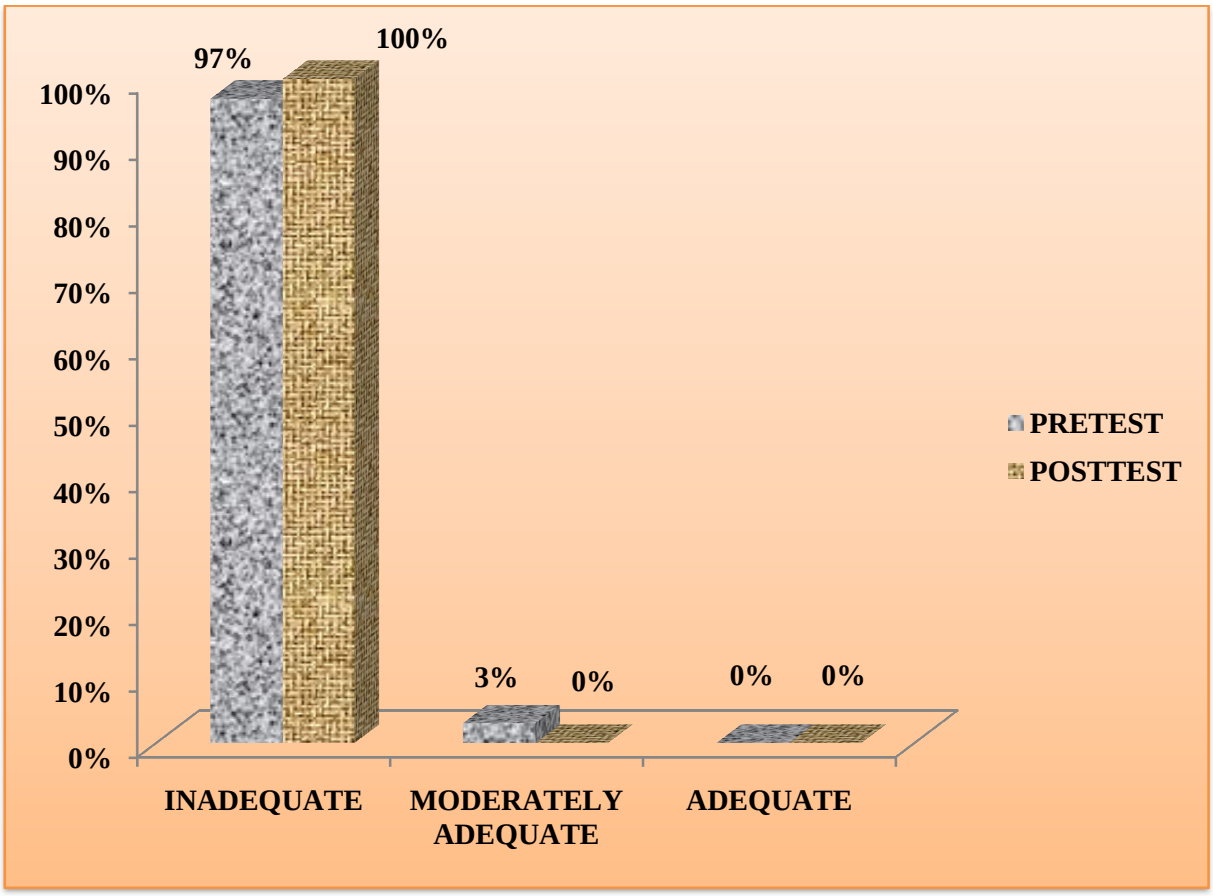

Fig.4.2.4: Percentage distribution of pretest and post test level of skill regarding chemotherapy complication control protocol among control group.

Fig4.2.4 reveals that with regard to the skill assessment in the pretest 29(96.67%) had inadequate skill and 1(3.33%) had moderately adequate skill and in post test, majority 30(100%) had inadequate skill in the control group.

Comparison of pretest and posttest level of knowledge and skill in experimental and control group reveals that in pretest both experimental and control group had inadequate knowledge and skill and in posttest experimental group knowledge and skill has been improved which proves that Chemotherapy Complication Control Protocol has increased the knowledge and skill among caregivers of children with cancer.

SECTION 4.3: EFFECTIVENESS OF CHEMOTHERAPY COMPLICATION CONTROL PROTOCOL ON LEVEL OF KNOWLEDGE AND SKILL AMONG CAREGIVERS OF CHILDREN WITH CANCER IN EXPERIMENTAL AND CONTROL GROUP.

TABLE 4.3.1 : Comparison of post test knowledge scores regarding chemotherapy complication control protocol between the experimental and control group.

N = 60

Groups	Post test mean	S.D	Unpaired 't' Value
Experimental Group (n = 30)	27.63	4.71	t = 17.706*** p = 0.000, S
Control Group (n = 30)	11.57	1.59	

***p<0.001, S – Significant

Table 4.3.1 shows that in the experimental group, the post test mean knowledge score was 27.63 with S.D 4.71 and in the control group the score was 11.57 with S.D 1.59. The calculated 'r' value was r = 17.706 which showed a moderate positive correlation and it was found to be statistically significant at p<0.001 level.

Comparison of post test level of knowledge on chemotherapy complication control protocol among experimental and control group depicts that there was significant improvement in the level of knowledge among caregivers of children with cancer.

TABLE 4.3.2: Comparison of post test skill scores regarding chemotherapy complication control protocol between the experimental and control group.

N = 60

Groups	Post test mean	S.D	Unpaired 't' Value
Experimental Group (n = 30)	21.70	2.53	t = 22.301*** p = 0.000, S
Control Group (n = 30)	8.80	1.90	

***p<0.001, S – Significant

The above table 4.3.2 shows that in the experimental group, the post test mean skill score was 21.7 with S.D 2.53 and in the control group the score was 8.8 with S.D 1.9. The calculated 'r' value is r = 22.301 and showed a highly positive correlation and it was found to be statistically significant at p<0.001 level.

Comparison of post intervention level of skill on chemotherapy complication control protocol among experimental and control group depicts that there were significant improvement in the level of skill among caregivers of children with cancer.

SECTION 4.4: CORRELATION OF POST TEST KNOWLEDGE WITH SKILL SCORES REGARDING CHEMOTHERAPY COMPLICATION CONTROL PROTOCOL AMONG CAREGIVERS OF CHILDREN WITH CANCER IN EXPERIMENTAL GROUP.

Table 4.4.1 : Correlation of post test knowledge with skill score regarding chemotherapy complication control protocol among caregivers of children with cancer in experimental group.

n = 30

Variables	Mean	S.D	'r' Value
Knowledge	27.63	4.71	r = 0.513**
Skill	21.70	2.53	p = 0.004, S

**p<0.001, S – Significant

Table 4.4.1 shows that in the experimental group, the post test mean knowledge score was 27.63 with S.D 4.71 and the post test mean skill score was 21.870 with S.D 2.53. The calculated 'r' value is r = 0.513 showed a moderate positive correlation and it was found to be statistically significant at p<0.001 level.

This clearly proves when the knowledge on chemotherapy complication control protocol increases the skill level of the caregivers also increases.

SECTION 4.5: ASSOCIATION OF THE SELECTED DEMOGRAPHIC VARIABLES AND MEAN DIFFERED SCORE OF KNOWLEDGE IN EXPERIMENTAL GROUP.

Table 4.5.1 : Association of the selected demographic variable and mean differed knowledge score in experimental group.

n= 30

Demographic Variable	Pretest		Post test		Mean diff.		One way ANOVA
	Mean	S.D	Mean	S.D	Mean	S.D	
Educational status							
Non - literate	15.62	4.24	28.25	3.99	12.62	1.88	
Primary education	15.70	4.29	26.80	5.83	11.10	2.51	F =3.530
High school education	16.43	2.82	29.86	4.18	13.43	2.93	**P =0.029**
Higher secondary education	16.20	4.15	25.20	3.42	9.00	3.08	**S***
Diploma	-	-	-	-	-	-	
Graduate and above	-	-	-	-	-	-	

*p<0.001, S – Significant

The above table 4.5.1 shows that in experimental group, educational status had shown statistically significant association with the mean differed knowledge score and other demographic variables did not show any statistical significant association of caregivers on chemotherapy complication control.

SECTION 4.6: ASSOCIATION OF THE SELECTED DEMOGRAPHIC VARIABLES AND MEAN DIFFERED SKILL SCORE IN EXPERIMENTAL GROUP.

Table 4.6.1 : Association of the selected demographic variables and mean differed skill score in experimental group.

n= 30

Demographic Variable	Pretest		Post test		Mean diff.		One way ANOVA
	Mean	S.D	Mean	S.D	Mean	S.D	
Educational status							
Non - literate	10.37	2.06	23.25	2.19	12.87	1.73	
Primary education	11.00	2.45	21.30	1.83	10.30	2.11	
High school education	9.43	1.51	23.00	2.08	13.57	2.82	F= 11.198
Higher secondary education	11.60	2.07	18.20	0.84	6.60	2.61	P= 0.000 S*
Diploma	-	-	-	-	-	-	
Graduate and above	-	-	-	-	-	-	
Occupational status							
Unskilled	11.57	2.69	23.00	2.08	11.43	2.15	
Semi skilled	10.00	1.64	21.62	2.46	11.62	3.12	F = 4.729
Skilled	13.00	2.83	18.00	0.00	5.00	2.83	P = 0.017 S*
Professional	-	-	-	-	-	-	
Others	-	-	-	-	-	-	

*p<0.001, S – Significant

The above table 4.6.1 shows that in experimental group, educational status and occupational status, had shown statistically significant association with the mean differed skill score and other demographic variables did not show any statistical significant association of caregivers on chemotherapy complication control protocol.

CHAPER – 5

DISCUSSION

DISCUSSION

This chapter discusses the findings of the study derived from the statistical analysis and its pertinence to the objectives set for the study and related literature of the study. The purpose of the study was to assess the effectiveness of chemotherapy complication control protocol on knowledge and skill among caregivers of children with cancer at selected hospital, Chennai.

5.1 Description of the demographic variables

Table no: 4.1.1- 4.1.3 describes the demographic variables of care givers of children with cancer in the experimental group, with respect to age 12(40%) belongs to 31 – 35years and 17 (56.67%) belongs to 26 – 30 years in control group, sex 30(100%) belongs to female both in experimental and in control group, educational status 10 (33.33%) had done primary education and in control group 12 (40%) had done high school education, occupational status in experimental group 21(70%) and in control group 20 (66.67%) semi skilled, family history of cancer 30 (100%) did not had any family history of cancer both in experimental and in control group, food habits 15 (50%) were vegetarian in experimental group and in control group 17(56.67%) were vegetarian, type of diagnosis 60 (100%) all the children were having leukemia both in experimental and in control group, duration of illness from the period of diagnosis majority 60 (100%) all the children were been diagnosed with cancer within 1- 3 months both in experimental and in control group, type of treatment 60 (100%) all the children were been receiving chemotherapy both in experimental and control group.

5.2 The first objective was to assess and compare the pretest and posttest level of knowledge and skill regarding chemotherapy complication control protocol among experimental and control group.

Fig.no: 4.2.1- 4.2.4 reveals the analysis on knowledge assessment, in the pretest, majority 21(70%) had inadequate knowledge, 9(30%) had moderately adequate knowledge in experimental group and in control group 30(100%) had inadequate knowledge and in the posttest, majority 16(53.33%) had moderately adequate knowledge

and 14(46.67%) had adequate knowledge and in control group 30(100%) had inadequate knowledge regarding chemotherapy complication control protocol.

The analysis on skill assessment revealed that in the pretest, majority 25(83.33%) had inadequate skill, 5(16.67%) had moderately adequate skill in experimental group and in control group 29(96.67%) had inadequate skill and 1(3.33%) had moderately adequate skill and in posttest, majority 14(46.67%) had moderately adequate skill, 16(53.33%) had adequate skill and in control group, majority 30(100%) had inadequate skill regarding chemotherapy complication control protocol.

The analysis result portrayed in table no: 4.3.1 reveals that in the pretest the mean score of knowledge was 15.93 with S.D 3.77 and the posttest mean score was 27.63 with S.D 4.71. The calculated 't' value of t = 22.545 was found to be statistically highly significant at $p<0.001$ level in experimental group. In control group, the pretest the mean score of knowledge was 11.13 with S.D 2.01 and the posttest mean score was 11.57with S.D 1.59. The calculated 't' value of t = - 0.859 was found to be statistically not significant at $p< 0.001$ level.

The analysis result portrayed in table no: 4.3.2 reveals that in the pretest the mean score of skill was 10.57 with S.D 2.13 and the posttest mean score was 21.70 with S.D 2.53. The calculated 't' value was t = 18.607 was found to be statistically highly significant at $p<0.001$ level in experimental group. In control group, the pretest mean score of skill was 8.73 with S.D 2.54 and the posttest mean score was 8.80 with S.D 1.90. The calculated 't' value of t = - 0.273 was found to be statistically not significant at $p< 0.001$ level.

Gibson, G, et al., (2012) conducted an exploratory study among 100 caregivers of cancer children at Cancer Hospital, New Jersey, to assess the knowledge on chemotherapy complication. The tool used involved structured knowledge questionnaires and the results revealed that nearly 45% of the caregiver who were whose children were newly exposed to chemotherapy administration had low level of knowledge on chemotherapy complication. Thus the study recommended for the teaching programme to all caregivers on the side effect management during chemotherapy administration.

Creaton EM, et al., (2011) conducted a pre experimental study to assess the knowledge on chemotherapy complication and effectiveness of educational programme on management of chemotherapy complications among 50 inpatient caregivers in Boston. The data collection tool involved standardized knowledge questionnaires on chemotherapy complication and educational programme involves video show for 30min.Purposive sampling technique was used for the sample selection in the study. The study results revealed that in pretest 55% of the caregivers had inadequate knowledge and in posttest 70% of the caregivers had adequate knowledge, thus concluded that the educational programme should significant improvement in the caregivers knowledge regarding chemotherapy complication management.

Kosgeroglu N, et al., (2010) conducted a descriptive study among 100 caregivers at Bhopal, India to determine the level of information possessed by the caregivers on chemotherapy administration and complication. The research tool involved semi structured interview schedule and the study findings revealed that 7.4% of the caregivers had moderate knowledge on chemotherapy complication and received education on the chemotherapy administration through hospital workers.

5.3 The second objective was to assess the effectiveness of chemotherapy complication control protocol on knowledge and skill among experimental and control group

The analysis result in the table no: 4.3.1 portrayed that the comparison of posttest mean score for knowledge in experimental group was 27.63 with S.D 4.71 and in control group the post test mean score was 11.57 with S.D 1.59.The calculated unpaired ‘t’ value of $t = 17.706$ was found to be statistically significant at $p< 0.001$ level.

The analysis result in the table no: 4.3.2 portrayed that the comparison of posttest mean score for skill in experimental group was 21.70 with S.D 2.53 and in control group the post test mean score was 8.80 with S.D 1.90.The calculated unpaired ‘t’ value of $t = 22.301$ was found to be statistically significant at $p< 0.001$ level.

This proves the fact that chemotherapy complication control protocol among caregivers of children with cancer has increased their knowledge and skill. The

investigator has adopted the conceptual framework of J.W.KENNY'S open system model to assess the effectiveness of chemotherapy complication control protocol. The conceptual framework guided the investigator in testing the hypothesis. The Investigator enhanced the knowledge and the skill among caregivers of children with cancer through video show and demonstration of skill. The posttest assessment of knowledge and skill among the caregivers has shown an improvement in the experimental group. Thus the achievement of goal or the positive outcome is been enhanced and negative outcome is reinforced by further teaching and issue of booklets on chemotherapy complication control protocol.

Lakshanika, (2012) conducted a pre experimental study to assess the effectiveness of homecare management package on chemotherapy complication among caregivers of children with cancer. The study tool involved structured knowledge questionnaires and video show for the enhancement of caregivers knowledge. The sampling technique involved in the study includes purposive sampling technique. The study results revealed that in the pretest 70% of the caregivers had inadequate knowledge and in posttest 85% of the caregiver had moderately adequate knowledge and thus concluded that homecare management package on chemotherapy complication was effective in improving the knowledge level among the caregivers. The study recommended the use of homecare educational package to enhance the caregivers knowledge on chemotherapy administration.

Calisken Yilmaz Z, et al., (2010) conducted a quasi experimental study to investigate the effectiveness of educational program on helping caregivers to meet the needs of children undergoing cancer treatment. The study included 30 caregivers each in experimental and control group selected based on purposive sampling technique. The intervention tool involved video show on needs of cancer children and management of side effects of chemotherapy. The results revealed that in the posttest nearly 65% of the caregivers showed significant improvement in perception of child need after the educational programme.

Sczony G, Maldeline, et al., (2010) conducted an pre experimental study to assess the effectiveness of mass educational programme on cancer treatment complication at National school of Nursing, New Jersey among 200 caregivers of cancer

children. The study tool involved computer education to all the caregiver after their pretest knowledge assessment. The result revealed that 60% of the caregiver had inadequate knowledge during the pretest and 75% of the caregiver had moderately adequate knowledge on cancer treatment complication. The study concluded with the enhancement of more educational programme to the caregivers of cancer children.

Hence the null hypothesis **NH_1** stated earlier that **"There is no significant difference between the posttest level of knowledge and skill regarding chemotherapy complication control protocol between experimental and control group at $p<0.05$** was **rejected".**

5.4 The third objective was to correlate the posttest level of knowledge with skill among experimental group

The correlation results in the table no: 4.4.1 revealed that the mean differed knowledge score was 27.63 with S.D 4.71 and the mean differed skill score was 21.70 with S.D 2.53. The calculated 'r' value of $r = 0.513$ statistically significant at $p<0.001$ level, which showed that there is a high positive correlation.

The result reveals that there was a positive correlation between the mean differed score of knowledge with skill which indicated that when the level of knowledge of caregivers increases their skill level also increases.

The above findings were consistent with the study conducted by **Sharir.Z, (2011)** to assess the effectiveness of knowledge and skill protocol on Cancer complication management among caregivers of children with cancer. The tool involved in the study involved structured knowledge questionnaires and standardized checklist to assess the skill among the caregivers of cancer children. The result revealed that education through lectures and demonstration of procedures to care givers improves their knowledge and practice skill. The study concluded that as knowledge increases skill also increases among the caregivers of cancer children.

Schroy PC, et al., (2010) conducted an exploratory study to assess the effectiveness of educational strategy for improving the knowledge and risk perception among 50 caregivers of cancer children in U.S.A. The study tool involved structured interview schedule and the result revealed that educational programme through video show showed 75% improvement in the knowledge and risk perception among caregivers. The study concluded that as the knowledge increases the risk identification among the caregivers also increases.

Hence the null hypothesis **NH_2** stated earlier that **"There is no significant relationship between the posttest level of knowledge with skill among experimental group at p<0.05 level''** was **rejected.**

5.5 The fourth objective was to associate the selected demographic variables and mean differed score of knowledge and skill in experimental group.

The results portrayed in table no: 4.5.1 revealed that there was significant association of the mean differed score of knowledge with educational status among caregivers of children with cancer at p<0.001 level in experimental group.

The results portrayed in table no: 4.6.1 revealed that there was significant association of the mean differed score of skill with educational status and occupation status among care givers of children with cancer at p<0.001 level .

Hence the null hypothesis **NH_3** stated earlier that **"There is no significant association between the selected demographic variables with the mean differed score of knowledge** was **accepted for educational status** and **rejected for other demographic variables and for skill educational status and occupational status** was **accepted** and **rejected for other demographic variables among experimental group at p< 0.05 level.**

CHAPTER – 6

SUMMARY, CONCLUSION, IMPLICATIONS, RECOMMENDATIONS AND LIMITATIONS

SUMMARY, CONCLUSION, IMPLICATIONS, RECOMMENDATIONS AND LIMITATIONS

This chapter presents the summary, conclusion, implications, recommendations and limitations of the study.

6.1 SUMMARY

Cancer exists as a common health problem worldwide and childhood cancer tends to be the second most cause of deaths**.** Globally it is been stated that about 11,630 children were been diagnosed as cancer in 2013 out of which nearly 1,600 children were in South East Asian countries. In India the children affected with cancer is about 124 million.

The cancer treatment includes chemotherapy, radiation therapy and surgical management. Chemotherapy is the treatment of cancer using cytotoxic drugs and it is often used with radiation therapy or surgery.

Most of the children undergoing chemotherapy suffer with symptoms of anemia, appetite changes, bleeding, constipation, diarrhea, fatigue, hair loss, infection, mouth and throat changes, nausea and vomiting, skin and nail changes, etc and the caregivers would not been aware about management of these symptoms during the initial diagnosis and treatment.

Thus nurses play a crucial role to deliver the education on chemotherapy complication control measures for effective outcome and improvement in quality of life of the child. As the caregivers are the only hope for the children for maintenance of their wellbeing and as an constant support it is essential to enrich their knowledge on the treatment complication through standard chemotherapy complication control protocol to provide prompt care for the children.

6.1.1 Statement of the problem

The study was to assess the effectiveness of chemotherapy complication control protocol on knowledge and skill among caregivers of children with cancer.

6.1.2 The objectives of the study

To assess the effectiveness of chemotherapy complication control protocol on knowledge and skill among experimental and control group.

6.1.3 The study was based on the assumptions that

1) The Caregivers of children with cancer may have some knowledge and skill regarding chemotherapy complication control protocol.
2) The chemotherapy complication control protocol may improve caregivers knowledge and skill regarding chemotherapy complication control measures.

6.1.4 The null hypotheses of the study

NH_1: There is no significant difference between the posttest level of knowledge and skill regarding chemotherapy complication control protocol between experimental study and control group at $p< 0.05$ level.

The review of literature, professional experience and expert's guidance from the field of Pediatric Nursing provided a strong foundation for the study. It also strengthened the ideas for conceptual framework, aided to design the methodology and develop the tool for the data collection.

In view of explaining and relating various aspects of the study, the investigator had adopted the conceptual frame work of J.W.KENNY'S OPEN SYSTEM model. The researcher adopted a quasi experimental pretest posttest only design to assess the effectiveness of chemotherapy complication control protocol on knowledge and skill among 60 caregivers of children with cancer were selected and 30 were assigned each to experimental and control group. The caregivers were selected using non probability purposive sampling technique.

The tool constructed for the study has the following parts:

PART A: DATA COLLECTION TOOL

PART B: INTERVENTION TOOL

PART A

SECTION- 1: Demographic variables of the caregiver and the children

SECTION- 2: It consisted of structured questionnaires on

A) Chemotherapy Complication (20 questions)

B) Chemotherapy Complication Control Measures (20 questions)

Each item was a closed ended multiple choice questions with. Each correct response was given a score of 1 mark. The maximum score was 40.

SECTION- 3: It consist of observational checklist to assess the skill which included hand washing, ORS Preparation, salt water gargle and checking temperature using digital thermometer, tepid sponging.

Each item consisted of 7 steps and when performed correctly were given a score of 1. The total score was 28.

PART B

SECTION- 1: It consist of video show and reinforcement booklet on chemotherapy complication and its control measures

The Medical and Nursing experts validated the tool. The pilot study was conducted at Cancer Institute, Adyar (WIA) and it was found practicable and feasible to proceed with the main study. The reliability of the tool was established by Test-Retest method for knowledge and Inter rater method for skill assessment. The reliability score was $r = 0.803$ for knowledge and $r = 0.621$ for skill assessments which was assessed by using Karl Pearson's Correlation method. The 'r' value indicated that the tool shows highly positive correlation for knowledge and moderately significant correlation for skill assessment. Hence the tool was considered highly reliable for practicable and feasible to proceed with the main study.

The ethical aspect of research was maintained throughout the study by obtaining ethical committee clearance from the ICCR, formal permission from the authorities and written consent from the care givers who participated in the study.

The main study was conducted for a period of 4 weeks in the month of May 2013. A brief introduction of self and explanation on the purpose of the study was given. The written consent was obtained from the care givers.

On first week, the investigator collected data from the caregivers in control group (no 30) who were gathered in a well ventilated hall with good seating arrangement organized by the investigator through hospital authority. After obtaining written consent, the demographic variables were collected and the pretest knowledge questionnaire was administered. Each sample took 15 minutes to answer the knowledge questionnaires after which skill assessment on hand washing, ORS preparation, salt water gargle and checking temperature using digital thermometer in axilla, tepid sponging. The total hours of completion of all the four skill by the caregivers was two and half hours and each caregiver took 6 - 7 minutes to complete the four different skill which was assessed by using observational checklist based on WHO guidelines. The post test was conducted after one week without giving any intervention.

After a week the investigator gathered experimental group 30 samples in well ventilated hall with good seating arrangement organized by the investigator through hospital authority. After obtaining written consent, the demographic variables were collected and the pretest knowledge questionnaire was administered. Each sample took 15 minutes to answer the knowledge questionnaires after which lecture was given on Chemotherapy complication control measures using video show for 15 minutes.

Demonstration was done on skill for 30 min for the caregivers. The first skill was on hand washing , second was on ORS preparation, third was on salt water gargle and fourth was on checking temperature using digital thermometer in axilla, tepid sponging, for return demonstration the articles were been arranged in two sets and each care giver took 6 – 7 mins to complete the return demonstration. For the re- inforcement purpose the researcher gave booklet to all the caregivers, which contains the overview of chemotherapy complication control protocol.

After a week the investigator gathered experimental group 30 samples in well ventilated hall with good seating arrangement organized by the investigator through hospital authority for post test assessment. The post test knowledge questionnaire was

administered. Each sample took 15 minutes to answer the question and the demonstration on skill was carried out. The articles for demonstration of skill was arranged in two sets in the hall. All caregivers were asked to come one by one demonstrate the skill individually one after the other by themselves.

when the first caregiver started and completed the first skill hand washing and moved to salt water gargle, the second person started with hand washing and after completion of the skill by second person the third person started with hand washing and caregivers moved consequently after completion of one skill to another. The total hours of completion of all the skill by the caregivers was two and half hours and each caregiver took 6 - 7 minutes to complete the four different skill which was assessed by using observational checklist was based on WHO guidelines.

Main findings of the study were

The data collected was analyzed using descriptive and inferential statistics. Interpretation and discussion was done based on the objectives of the study, null hypotheses, conceptual framework and research studies from literature review.

- The analysis on knowledge assessment revealed that in the pretest, majority 21(70%) had inadequate knowledge, 9(30%) had moderately adequate knowledge in experimental group and in control group 30(100%) had inadequate knowledge and in the post test, majority 16(53.33%) had moderately adequate knowledge and 14(46.67%) had adequate knowledge and in control group 30(100%) had inadequate knowledge regarding chemotherapy complication control protocol.
- The analysis on skill assessment revealed that in the pretest, majority 25(83.33%) had inadequate skill, 5(16.67%) had moderately adequate skill in experimental group and in control group 29(96.67%) had inadequate skill and 1(3.33%) had moderately adequate skill and in post test, majority 14(46.67%) had moderately adequate skill, 16(53.33%) had adequate skill in experimental group and in control group, majority 30(100%) had inadequate skill regarding chemotherapy complication control protocol.
- The analysis on effectiveness of chemotherapy complication control protocol revealed that in the pretest the mean score of knowledge was 15.93 with S.D 3.77 and the post test mean score was 27.63 with S.D 4.71. The calculated ‘t’ value of

t = 22.545 was found to be statistically highly significant at p<0.001 level in experimental group. In control group, the pretest the mean score of knowledge was 11.13 with S.D 2.01 and the post test mean score was 11.57with S.D 1.59. The calculated 't' value of t = - 0.859 was found to be statistically not significant at p < 0.001 level.

- The analysis revealed that in the pretest the mean score of skill was 10.57 with S.D 2.13 and the post test mean score was 21.70 with S.D 2.53. The calculated 't' value of t = 18.607 was found to be statistically highly significant at p<0.001 level in experimental group. In control group, the pretest the mean score of skill was 8.73 with S.D 2.54 and the post test mean score was 8.80 with S.D 1.90. The calculated 't' value of t = - 0.273 was found to be statistically not significant at p < 0.001 level.
- The results of the correlation revealed that the mean differed knowledge score was 27.63 with S.D 4.71 and the mean differed skill score was 21.70 with S.D 2.53. The calculated 'r' value of r = 0.513 statistically significant at p<0.001 level which showed that there is a high positive correlation of knowledge and skill.

6.2 CONCLUSION

The present study assessed the effectiveness of chemotherapy complication control protocol on knowledge and skill among care givers of children with cancer. On the basis of the above study findings, it has been found that the protocol had an effect on enhancing the knowledge and skill among the caregivers. Hence, the chemotherapy complication control protocol can be utilized for the care givers of children with cancer to improve their knowledge and skill.

6.3 IMPLICATIONS

The investigator had drawn the following implications from this study which is of vital concern to the field of Nursing education, Nursing practice, Nursing administration and Nursing research.

6.3.1 Nursing Education

- Nursing education is the foundation on which the nursing practice is built. Sound knowledge creates and ensures delivery of sound practice. Hence Evidence based

guidelines should be integrated into nursing practice to render effective and quality care of children with cancer.

- Skill development is an essential component of professional life. The present study emphasizes on enhancement of knowledge and skill by making students to observe and perform skill in reduction on chemotherapy complication.
- Education has a positive impact on retention of knowledge and practice in all. Refresher course and training programs on chemotherapy should be systematically planned and regularly conducted for the caregivers of cancer children.

6.3.2 Nursing Practice

In this evidence based health care environment, localized research can be expanded to solve the immediate problems arises during nursing practice.

- Root cause analysis for children with cancer can be performed to improve nursing practice.
- Nurses can participate in the management of daily living, control of chemotherapy complication and the psychological care to the caregivers of children with cancer.
- The nurses in the clinical area can make use of the media and AV aids to provide teaching to the caregivers of children with cancer regarding chemotherapy complication control measures management.

6.3.3 Nursing Administration

- Nurse administrators should remain updated about the management of chemotherapy complication control protocol by attending various workshops, continuing education, in-service education program including seminars, symposium and conferences to introduce the needed changes coming up through ongoing scientific research in regard to the care givers and care of children with cancer.
- Nurse administrators should facilitate and encourage caregivers to update their knowledge and skills on aspects of cancer children care by organizing education program.

- Nurse managers can strengthen interdisciplinary and multidisciplinary collaboration with researchers.

6.3.4 Nursing Research

- The findings of the present study serves as basis for other professionals and the student nurses to conduct further studies and to find out the effectiveness of various methods of providing education.
- Training caregivers in skills is essential for day today management of children with cancer and is likely to have a role in reducing the burden of caregivers and more studies can be conducted in this area.
- Expanding and dissemination of the research findings to the nurse practitioners and student nurses through internet, journals, literature helps in promotion of evidence informed practice (EIP).

6.4 RECOMMENDATIONS

1. The investigator recommends the affiliated institutions of Omayal Achi College of Nursing to use the chemotherapy complication control protocol to provide health education to caregivers of children with cancer.
2. A true experimental study can be conducted to assess the effectiveness of the Chemotherapy complication control protocol with practice assessment among the caregivers of children with cancer.
3. An explorative study can be done at various settings to identify the care givers perception of chemotherapy complication and control measures.
4. A study can be conducted to evaluate the quality of care givers knowledge and skill in chemotherapy complication control measures.
5. A study can be conducted on selection of one complication with specific nursing intervention to evaluate the effectiveness on the control measures.
6. Similar study can be replicated on a larger sample to increase validity and generalizability of results.

6.5 LIMITATIONS

1. The researcher found difficult to get permission from hospital, to conduct the study.
2. The investigator found difficult to gather the group for knowledge and skill training.

6.6 PLAN FOR RESEARCH DISSEMINATION

- The pilot study of the research findings was presented in the 2nd International conference held at Chettinad College of Nursing.
- The research findings will be published in the Journal of Indian academy of pediatrics after the approval.

6.7 PLAN FOR RESEARCH UTILIZATION

Through the appropriate channel of communication and formal permission from the principal of Omayal Achi College of Nursing, the protocol will be given to the Cancer Institute, Adyar (WIA) for the utilization.

REFERENCES

BOOKS

Behrman Richard, E. (1999). *Nelson's Textbook of pediatrics.* Philadelphia: W.B.Sounders Company.

Blake Florence, G. (1963). *Nursing care of children.* Philadelphia: J.B. Lippincott Company.

Braunwald Eugene. (2001). *Harrison's Principles of internal medicine.* New York: Mc Grawhill publication.

Elzouki Abdelaziz, Y. (2001). *Textbook of clinical pediatrics.* Philadelphia: Wllteys Kulwer company.

Florence Blake,G. (1998). *Nursing care of Children.* Philadelphia: J.B.Lippincott Company.

Foster Romness Roxie, L. (1989*). Family – centered nursing care of children.* Philadelphia: W. B. Sounders Company.

Ghai, O. P. (1999). *Essential pediatrics.* New Delhi: Interprint publication.

Gupta Suraj. (2004). *The short textbook of pediatrics.* New Delhi: Jaypee Brothers medical publishers (p) Ltd.

Gurumani. (2004*). An introduction to biostatistics.* Chennai: M.J.P publishers.

Hockenberry Marilyn, J.(2005*).Wong's Essentials of pediatric nursing.* Missouri: Mosby publication.

Jane Ball. (2000*). Pediatric nursing - caring for children.* Philadelphia: Mosby publication.

Karen, N. (2005). *Core Curriculum for Oncology Nursing.* USA: Elsevier publishers.

Kozier Barbara. (1987***). Fundamentals of nursing - Concepts and procedures.*** California: Addison Wesley Publishers.

Margaret, B. B. (2004*). Cancer Chemotherapy:* a nursing process approach. USA: Elsevier science publishers.

Marlow Dorothy, R. (2005*). Textbook of pediatric nursing.* Philadelphia: Saunder's company.

Martha Ralie Alligon. (2000*). Nursing theorists and their work.* New Delhi: Mosby Publication.

Nathan David, G. (2003*). Hematology of infancy and Childhood.* Philadelphia: W.B.Saunders Company.

Parthasarathy, A. (2007*). IAP Textbook of Pediatrics.* New Delhi: Jaypee brothers Medical publishers (P) Ltd.

Phillip Pizzo, A. (1997). *Principles and practice of pediatric oncology.* Philadelphia: Lippincott Raven publisher.

Polit Denise, F. (2006*). Nursing research - Principles and methods.* Philadelphia: Lippincott Company.

Polit, Beck, P. (2011). *Nursing Research Principles and Methods.* Philadelphia: J.B.Lippincott Company.

Ronald, T. (2011). *Handbook of Cancer Chemotherapy.* China: Lippincott William and Wilkins.

Terry, J. (2007). *Cancer Chemotherapy in Clinical Practice.* London: Springer publishers.

Thomas Stocker, J. (2002). *Pediatric pathology.* New York: Lippincott Williams and Willkins publishers.

Thompson Dumont Eleaner. (1992*). Pediatric Nursing.* Philadelphia: W.B.Saunders Company.

Viswanathan. (1991*). Textbook of pediatrics.* Hyderabad: Orient Longman Limited.

Waechter Eyenia, H. (1985). *Textbook of children.* Philadelphia: J.B.Lippincott Company.

William Hathway, E. (1995). *Current pediatric diagnosis and treatment.* London: Prentice Hall International.

JOURNALS

Anaswamy, ME., et al., (2012). Evaluate the effectiveness on hand hygiene among caregivers. *Journal of clinical oncology.* 30(2):175-88.

Anderson, D., et al., (2012).Effectiveness of ice chips in prevention of oral mucositis. *Journal of clinical oncology.* 8-22, 18(1):42-8.

Alptakin, S., et al., (2010). Assess the quality of child care and knowledge on chemotherapy on caregivers. *Journal of Pediatrics oncology.*11(6), 128-135.

Beritbart, W., et al., (2010). Assessment of prevalence of cancer related fatigue. *Journal of clinical oncology.*82(9): 28 – 31.

Breen, M., et al., (2011). Side effects of cancer treatment in children. *Journal of Pediatric oncology.*28(3): 2 – 11.

Brown, SW., et al., (2010). Analysis on infection among cancer children. *Journal of Pediatric oncology.*28(3): 8 – 10.

Calsiken Yilmaz M, et al., (2010). Effectiveness of educational program among caregivers. *Supportive Care Cancer.* 18(2): 293 – 53.

Carla, CP Verstappan. (2010). Neuro toxic side effects of chemotherapy. *Supportive Care Cancer.* 18(1):51.

Chen CF., Wang R.,(2008). Chemotherapy induced oral complications in children. *Journal of Pediatric oncology.*28(3): 22 – 24.

Craig WJ., (2010). Benefits of vegetarian diet on children. *Journal of medical oncology.*11(6), 128-135.

Creaton, EM., et al., (2011). Knowledge on chemotherapy complications and educational programme. *Journal of clinical oncology.*82(9): 28 – 31.

Elison ., (2009). Quality of child care among cancer children. *Journal of Pediatric oncology.*34(3):18 – 21.

Geri lo biondo wood., (2011). Review of literature. *Journal of clinical oncology.*1(2): 2.

Gibson, G., et al., (2012). Knowledge on chemotherapy complications among caretakers of cancer child. *Journal of clinical oncology.*82(9): 28 – 30.

Handdy, TB., et al., (2009). Late effect of childhood chemotherapy treatment. *Journal of Pediatric oncology.*28(3): 9 – 10.

Hansson, E., et al., (2012). Effectiveness of hospital health education among cancer caregiver. *Journal of clinical oncology.*82(9): 4 – 6.

Henrix, et al., (2009). Individualized caregiver instruction on symptom management. *Journal of Pediatric oncology.*28(3): 9 – 16.

Hileman, SW., et al., (2010). Assess the knowledge on chemotherapy side effects among caretakers. *Journal of Pediatric oncology.*8(1): 6.

Hnang, T., (2011), Impact of exercise on health and physical wellbeing during cancer treatment. *Journal of clinical oncology.*80(9): 4 – 6.

Kinlgren., et al., (2012). Parental handling of fear in cancer children. *Journal of Pediatric oncology.*22(3): 9 – 15.

Kosgeroglu, N.,et al., (2010). Level of information on chemotherapy administration and complication among caregivers. *Journal of clinical oncology.*82(9): 6 - 9.

Lakshanika, (2012). Effectiveness of homecare management package on chemotherapy complication. *Journal of nursing research society of India. 2*(4): 16 - 19.

Mc Caughan, E., Parahoo, K., (2010). Perception and educational need in caring of cancer children. *Journal of Pediatric oncology.*22(4): 19 – 25.

Miller, G., et al., (2011). Prevalence of common symptoms among children undergoing chemotherapy treatment. *Journal of Pediatric oncology.*2(3): 36 - 38.

Peter mauch, M D., et al., (2009). Evaluation of long term survival and treatment complication among Hodkin's disease children. *Journal of Pediatric oncology.*2(3): 9 – 10.

Rheingans, J., et al., (2010). Assessment of distressing symptoms reported by cancer children to caregivers. *Journal of Pediatric oncology.*1(6): 9 – 10.

Rizalar, S., Health education on personal and environmental protection for childrens during chemotherapy treatment. *Journal of Nursing times.*1(6): 7.

Roberson, E.,et al., (2011). Salt water gargle on prevention of oral complication among chemotherapy children. *Journal of clinical oncology.*82(9): 6 - 9.

Rodger, C., Kollar, D., Taylor, O., (2012).*Journal of clinical oncology.*82(9): 6 - 9.

Sarah, S., et al., (2010). Nutrition and its impact on cancer children. *Journal of clinical oncology.*2(3): 9 – 10.

Schrony, PC., et al., (2010). Effect of educational stratergy in improving knowledge and risk perception among caregivers. *Journal of medical oncology.*2(3):119 - 120.

Sczony, G., Maldeline., et al., (2010). Education program on cancer treatment. *Nursing times* 8(9): 5- 10.

Sharir, Z., (2010). Effect of educational stratergy in improving knowledge and risk perception among caregivers. *Journal of medical oncology.*2(3):119 - 120.

Shipway, L., et al., (2010). Importance of nutrition during cancer treatment. Evaluation of *Journal of Pediatric oncology.*2(3): 54 – 60.

Trask, CL, Welch.,et al., (2009). Effect of educational programme on parental knowledge on neurocognitive late effect during chemotherapy treatment. *Journal of medical oncology.*2(3): 30 - 34.

Williams, PD., et al., (2010). Complication during chemotherapy treatment. *Journal of Pediatric oncology.*2(3): 34 – 35.

Wolfgang, J., Kostler, MD., et al., (2010). Prevalence of oral mucositis among chemotherapy children. *Journal of Pediatric oncology.*22(3): 154 – 158.

Wolf rober., et al., (2010). Impact of palliative care programme among caregivers. *Journal of Pediatric oncology.*22(3): 100 – 102.

PUBLISHED REPORT

American Cancer report, (2013). Caregivers knowledge on chemotherapy complication control measures.

American Cancer Society report, (2012). Caregivers burden with cancer children.

American childhood cancer organization report, (2012). Types of cancer affecting 0 – 14years of children.

Cancer Organization, (2013). Global incidence on childhood cancer.

Cancer Organization of American Cancer Society, (2000). Global report on childhood cancer.

Indian journal of oncology,(2012). Incidents of childhood cancer report(population based cancer registered report

National Cancer control programme report (1975 to 1976) .

National Cancer Institute, (2012). Global report on childhood cancer.

National Cancer institute report, (2012). Prevalence of anticipatory nausea and vomiting among children.

World Health Organization, (2012). Global report on common childhood cancer.

World Health Organization, Cancer Organization (2013). Worldwide incidence of cancer.

World Health Organization, (2013). Cancer incidence in India.

World Health Organization, Cancer Organization (2012). Global incidence of children under chemotherapy.

NEWSPAPER

Cancer treatment in India: Study Posted on February 22, 2013. The Indian Express.

INTERNET REFERENCES

Cancer incidence, mortality, and prevalence worldwide.,(2013). Version 1.0.2001. (IARC Cancer Base; 5). Retrieved from http://onlinelibrary wiley.com/di/10. 1002/ijc.1440/full

Incidence of Chemotherapy indunced hair loss; (2013). Medscape online journal. Retrived from http://www.pubmed.com

Incidnce of childhood cancer in rural India: Department of Health and Family Welfare (population based cancer registered report 2012).Retrievedfromhttp://www.who.int/healthinfo/glob_bur_dis_cod_2008_sources_methods.pdf

National Cancer Registry. (2012)Cancer characteristics and defining features. Retrieved from http://www.icmr.nic.in/ncrp/cancer.htm

National Chemotherapy Advisory Group. Impact assessment of national chemotherapy advisory group recommendations: Department of Health;(2012). Retrievedfromhttp://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsLegislation/DH_114

The geographical distribution and concentration of cancer types in India. (2012).WHO STATISTICS ON NCD IN WORLD AND INDIA. Retrieved from http://cameroninstitute.com/attachments/044_The%20burden%20of%20non-communicable%20dieases%20in%20India.2010.pdf

World Health Organization, (2013). Fact sheet on cancer. Retrieved from http://www.who.int /mediacentre/factsheets/fs297/en/

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APPENDIX – C

LETTER SEEKING EXPERTS OPINION FOR CONTENT VALIDITY

From

Ms S.Srimathi
M.sc (N) I year,
Omayal Achi College of Nursing,
Puzhal, Chennai.

To

Respected sir/ Madam,

Sub: Requisition for expert opinion for content validity reg

I am S.SRIMATHI doing my M.sc Nursing specializing in Child Health Nursing at Omayal Achi College of Nursing. As a part of my research project to be submitted to the Tamilnadu Dr.M.G.R.Medical University and in partial fulfillment of the University requirement for the award of M.sc (N) degree, I am conducting "A study to assess the effectiveness of chemotherapy complication control protocol on knowledge and skill among care givers of children with cancer at selected hospital Chennai. I have enclosed my data collection and intervention tool for your expert guidance and validation. Kindly do the needful.

Thanking you

Yours faithfully,
(S.Srimathi)

Enclosure:

1. Research proposal
2. Data collection tool
3. Intervention tool
4. Content validity form
5. Certificate for content validity

LIST OF EXPERTS FOR CONTENT VALIDITY

MEDICAL EXPERTS:

1. **Dr.Gurumoorthy,M.B.B.S.,DMRT.,MRSH(LONDON)**
   Consultant Medical Oncology,
   Vijaya Health Centre,
   Vadapalani,Chennai.

2. **Dr.Anil Kumar, M.B.B.S.,M.D**
   Pediatric Intensivist,
   Vijaya Health Centre,
   Vadapalani,Chennai.

3. **Dr.Padma, M.B.B.S.,M.D**
   Pediatrician,
   Vijaya Health Centre,
   Vadapalani,Chennai.

CHILD HEALTH NURSING EXPERTS:

1. **Dr.Judie., M.Sc.(N).,Ph.D**
   Principal,
   MMM College of Nursing,
   Chennai.

2. **Mrs.Maheshwari, M.Sc (N)**
   HOD, Child Health Nursing,
   Vel.R.S.College of Nursing,
   Chennai.

3. **Mrs.Vasantha Kumari, M.Sc (N)**
   Vice Principal,
   Vignesh College of Nursing
   Thiruvannamalai.

APPENDIX – F

INFORMED CONSENT REQUISTION FORM

Good Morning

I am S.SRIMATHI studying M.Sc. (Nursing) at Omayal Achi College of Nursing, Puzhal, Chennai. As a part of fulfillment of the programme, I am conducting **"A study to assess the effectiveness of chemotherapy complication control protocol on knowledge and skill among caregivers of children with cancer at selected hospital, Chennai".**

I request you to extend your cooperation and willing in the study. Your responses will be kept confidential and will be used only for the research study.

Thanking you,

Signature of the Investigator

S.SRIMATHI

INFORMED CONSENT FORM

I understand that I am being asked to participate in a research study conducted by MS.S.SRIMATHI, M.sc Nursing 1st year Omayal Achi College of Nursing Puzhal. This research study will evaluate **Effectiveness of Chemotherapy Complication Control Protocol On knowledge and Skill among CareGivers of Children with Cancer at Selected Hospital Chennai.** If I agree to participate in the study, I will be given structured questionnaires to answer for knowledge assessment and I will be observed for selected skills by using observational check list. The answers will be kept confidential. No identifying information will be included during the analysis process. I understand that there are no risks associated with this study.

I realize that I may participate in the study if I am younger than 18 years of age with consent from my parent/ guardian. I realize that the knowledge gained from this study may help either me or other people in the future. I realize that my participation in this study is entirely voluntary, and I may withdraw from the study at any time I wish. If I decide to discontinue my participation in this study, I will continue to be treated in the usual and customary fashion.

I understand that all study data will be kept confidential. However, this information may be used in nursing publication or presentations. If I need to, I can contact S.SRIMATHI, M.sc Nursing 1st year Omayal Achi College of Nursing Puzhal Phone No: 04426591617 at any time during the study.

The study has been explained to me. I have read and understood this consent form, my entire question has been answered, and I agree to participate. I understand that I will be given a copy of this signed consent form.

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Signature of Participant Date:

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Signature of Investigator Date:

APPENDIX – G

DATA COLLECTION TOOL

STRUCTURED KNOWLEDGE QUESTIONAIRES TO COLLECT DEMOGRAPHIC DATA

SECTION –A DEMOGRAPHIC DATA

S.NO DEMOGRAPHIC VARIABLES OF THE CAREGIVERS

1. Age of the caregivers

a) 20-25years
b) 26-30years
c) 31-35years
d) 36-40years
e) >40years

2. Gender

a) Male
b) Female

3. Educational status

a) Non-literate
b) Primary education
c) High school education
d) Higher secondary education
e) Diploma
f) Graduate and above

4. Occupational status

a) Unskilled
b) Semiskilled
c) Skilled
d) Professional
e) Other's

5. Family history of cancer

a) Yes
b) No
c) If yes specify- Maternal
Paternal
Uncertain

6. Food habits

a) Vegetarian
b) Non-vegetarian
c) Ova vegetarian

7. Previous knowledge on chemotherapy complication control protocol

a) Yes
b) No
c) If yes specify
d) Within 3 month
e) Within 6 month
Within 8 month

S.NO DEMOGRAPHIC VARIABLES OF THE CHILD

8. Type of diagnosis

a) Lymphoma
b) Myeloma
c) Leukemia
d) Others

9. Duration of illness from the period of diagnosis

a) 1-3 month
b) 4-6 month

10. Type of treatment

a) Chemotherapy
b) Radiation therapy
c) Surgical intervention
d) Both chemotherapy and radiation therapy
e) Others

SECTION – 2

PART I: QUESTIONAIRES TO ASSESS THE KNOWLEDGE ON CHEMOTHERAPY COMPLICATIONS

S.NO.	KNOWLEDGE QUESTIONNAIRES	Give (✓) mark in correct answer
1	**Cancer refers to** a) Coupled cell growth b) Uncontrolled growth of cells c) Replicated cell division d) Cell Mutilation	
2	**Chemotherapy refers to** a) Rehabilitative Treatment b) Standardized regimen for injection c) Palliative care d) Treatment of cancer with cytotoxic antineoplastic drugs	
3	**Chemotherapy is often used with** a) Blood transfusion b) Medication administration c) Radiation therapy d) Nerve therapy	
4	**Metastatic cancer refers to** a) Increase in tumor cells b) Spread of cancer cells c) Destroying mass cells d) Replicating healthy cells	
5	**Chemotherapy is given for a period of** a) 2 cycles b) 5 cycles c) 8 cycles d) 6 cycles	

S.NO.	KNOWLEDGE QUESTIONNAIRES	Give (✓) mark in correct answer
6	**Chemotherapy is generally administered at** a) Primary health centre b) Community centre c) Cancer hospital d) Clinics	
7.	**Common side effects of chemotherapy includes** a) Brain Death b) Skin changes and Bruises c) Kidney failure d) Heart and Liver damage	
8.	**Anemia refers to** a) Decreased Hb b) Decreased WBC c) Increased platelet d) Decreased RBC	
9.	**Loss of appetite is due to** a) Tiredness b) Stomach pain c) Oral ulcers d) Nausea	
10.	**Thrombocytopenia refers to** a) Increase in RBC b) Decrease in RBC c) Increase in polymorphs d) Decrease in platelet	
11.	**Cells that make blood to clot** a) WBC b) RBC c) Plasma d) Platelet	

S.NO.	KNOWLEDGE QUESTIONNAIRES	Give (✓) mark in correct answer
12.	**Severe diarrhea episodes are generally** a) 3-4 times/day b) 2-3 times/day c) 8-9 times/day d) 4-6 times/day	
13.	**Signs of Dehydration refers to** a) Weight gain b) Headache c) Sunken eyes d) Moist lips	
14.	**Fatigue refers to** a) Restlessness b) Tiredness c) Irritability d) Quiet	
15.	**Alopecia refers to** a) Arm loss b) Skin loss c) Hair loss d) Leg loss	
16.	**Hair fall usually starts by** a) 1 to 2 week after chemotherapy b) 3 to 4 week after chemotherapy c) 2 to 3 week after chemotherapy d) Above 5 week	
17.	**One of the pain symptoms which the child experience during chemotherapy includes** a) Tingling sensation b) Burning c) Numbness d) Pricking sensation	

S.NO.	KNOWLEDGE QUESTIONNAIRES	Give (✓) mark in correct answer
18.	**Infections are common due to** a) Decreased RBC b) Increased WBC c) Decreased WBC d) Increased platelet	
19.	**Signs of infection includes** a) Muscle pain and cramps b) Cough and Headache c) Vomiting and Irritability d) Chills and sore throat	
20.	**Nausea refers to** a) Gastric irritation b) Sense of vomiting c) Nervousness d) Blenching of food	
21.	**Anemia can controlled by** a) Eating balanced diet b) Doing regular exercise c) Limiting activities d) Sleep and rest	
22.	**Appetite can be increased by** a) Drinking plenty of water b) Eating spicy diet c) Sleep and rest d) Eating 5 to 6 small meal	
23.	**Certain medication which are to be avoided during bleeding includes** a) Salicylates b) Vitamin C c) Iron and folic acid d) Vitamin D	

S.NO.	KNOWLEDGE QUESTIONNAIRES	Give (✓) mark in correct answer
24.	**Management of thrombocytopenia includes** a) Blowing nose hardly b) Eating papaya c) Using soft brush for brushing teeth d) Intake of beetroot juice	
25.	**Constipation can be controlled by** a) Keeping record of bowel movement b) Eating spicy diet c) Being active and alert d) Drinking plenty of oral fluids	
26.	**Home remedy for control of diarrhea includes** a) Blood transfusion b) IV fluid c) ORS therapy d) Drugs	
27.	**Diet restricted during diarrhea are** a) Sweets b) Fresh juices c) Spicy diet d) Fried foods	
28.	**Low fibre diet includes** a) White rice b) Banana c) Bread toast d) Apple	
29.	**Diet for children with gastric problems includes** a) Fatty diet b) Bland diet c) Vegetables and fruits d) Mutton and chicken	

S.NO.	KNOWLEDGE QUESTIONNAIRES	Give (✓) mark in correct answer
30.	**Fatigue can be minimized by** a) Minimizing daily activity b) Adequate rest for 8 hours c) Exercise d) Travelling	
31.	**Hair can be damaged by the use of** a) mild comb b) electric hair dryers c) gel application d) use of roller brush	
32.	**Hair loss can be minimized by** a) With holding chemotherapy drugs b) Mild shampoo c) Gel application d) Soft hair brush usage	
33.	**Blood transfusion refers to** a) Administration of whole blood b) Administration of platelet c) Administration of pcv d) Administration of plasma	
34.	**Blood transfusion is essential when** a) Blood count goes less than 100mmol/l b) Blood count goes less than 70mmol/l c) Blood count goes more than 150mmol/l d) Blood count goes less than 70mmol/l	
35.	**Child's normal Hb count includes** a) 120-130mmol/l b) 110-140mmol/l c) 100-120mmol/l d) 90-110mmol/l	

S.NO.	KNOWLEDGE QUESTIONNAIRES	Give (✓) mark in correct answer
36.	**Skin changes can be minimized by** a) Wearing gloves b) Use of lotion with alcohol c) Use of hard soap d) Gel application	
37.	**Pain control measures includes** a) Play therapy b) Sleep and rest c) Yoga and deep breathing exercise d) Doing heavy work	
38.	**Control of infection includes** a) Maintenance of personal hygiene b) Hand washing c) Intake of unclean foods d) Staying away from the crowd	
39.	**Mouth ulcers can be controlled by** a) Salt water gargle b) Using hard brush for brushing c) Avoiding oral intake of fluids d) Eating spicy diet	
40.	**Fluid retention can be managed by** a) Avoidance of salt diet b) Limiting fluid intake c) Increased intake of spicy diet d) Adequate rest	

SECTION – 3

OBSERVATIONAL CHECK LIST TO ASSESS THE SKILL

HAND WASHING - 3 MIN

S.NO.	ITEMS	YES	NO
	PREPARATION OF THE ARTICLES		
1	Soap with soap dish, hand towel.		
	PERFORMANCE		
2	Stand in front of the mirror, remove bangles, rings, watch.		
3	Turn on water.		
4	Using plain water, wash parts of hands.		
5	Apply soap and rub the Palms, fingers, web space, Back of hands, Fingers and knuckles, Thumb, Wrist and forearm up to elbow.		
6	Using plain water wash hands, Close the tap.		
7	Dry hands using clean towel.		

ORAL REHYDRATION SOLUTION PREPARATION

S.NO.	ITEMS	YES	NO
	PREPARATION OF THE ARTICLES		
1	Bowl with water, ORS small packet, teaspoon to stir		
	PERFORMANCE		
2	The bowl should be washed thoroughly with washing powder.		
3	Take 250ML of boiled cooled water in the bowl		
4	Add one packet of ORS Powder		
5	Stir until the powder mixes with the water and give it to the child		
6	The bowl should be washed thoroughly with soap and water		
7	Wash hands		

SALT WATER GARGLE - 5 MIN

S.NO.	ITEMS	YES	NO
	PREPARATION OF THE ARTICLES		
1	Bowl with water(250)ml measuring cup, teaspoon and salt		
	PERFORMANCE		
2	Take 250 ML of Luke warm water		
3	Add half teaspoon of salt		
4	Stir it until the salt mixes with the water.		
5	Ask the child to gargle for 3-4min before each meal		
6	Repeat the procedure until the child tolerates.		
7	Wash hands.		

TEPID SPONGING

S.NO.	ITEMS	YES	NO
	PREPARATION OF ARTICLES		
1	Basin with ice pieces with water, (plain tap water), clean cotton cloth [6]-one bath towel, one face towel and cotton balls, digital thermometer.		
	PROCEDURE		
2	Wash hands, wipe the axilla using one cotton ball.		
3	Take digital thermometer, place it under the axilla and wait until beep sound hears after which remove the thermometer and note the temperature.		
4	Pack the ears with cotton balls, Mix water with ice cubes, Soak the clean cloth in ice cooled water, wring it. Place one cloth in fore head, Place other wet cloths in each axilla and groin.		
5	First sponge the neck, right arm from shoulder to the finger tip, Second Sponge the left arm from shoulder to finger tip, chest and abdomen.		
6	Cover the upper half of the body and expose the lower half, Sponge the right and left lower limb, Turn the child to your side and sponge the back with one long stroke.		
7	Continue the treatment until temperature comes down Wash hand, Check the temperature with digital thermometer after 20 min.		

APPENDIX – H

PLAGIARISM REPORT

HOW DOES VIPER WORKS?

http://www.scanmyessay.com/

Report for ' SRI.docx'

Overall content match: 3%

Direct quotes: 0% of which 0% found online.

Actual content match minus quotes: 3%

Checked On - 12/12/2013.

Signature of the Candidate **Signature of the Principal**

APPENDIX – I

CODING FOR THE DEMOGRAPHIC VARIABLES

SECTION –A DEMOGRAPHIC DATA

S.No.	Demographic variables of the caregivers	Code No.
1.	**Age of the caregivers**	
	a) 20-25years	1
	b) 26-30years	2
	c) 31-35years	3
	d) 36-40years	4
	e) >40years	5
2.	**Gender**	
	a) Male	1
	b) Female	2
3.	**Educational status**	
	a) Non-literate	1
	b) Primary education	2
	c) High school education	3
	d) Higher secondary education	4
	e) Diploma	5
	f) Graduate and above	6
4.	**Occupational status**	
	a) Unskilled	1
	b) Semiskilled	2
	c) Skilled	3
	d) Professional	4
	e) Others	5

5.	**Family history of cancer** a) Yes b) No c) If yes specify- Maternal Paternal Uncertain	 1 2 3
6.	**Food habits** a) Vegetarian b) Non-vegetarian c) Ova vegetarian	 1 2 3
7.	**Previous knowledge on chemotherapy complication control protocol** a) Yes b) No c) If yes specify Within 3 month Within 6 month Within 8 month	 1 2 3
	Demographic variables of the child	
8.	**Type of diagnosis** a) Lymphoma b) Myeloma c) Leukemia d) Others	 1 2 3 4
9.	**Duration of illness from the period of diagnosis** a) 1-3 month b) 4-6 month	 1 2
10.	**Type of treatment** a) Chemotherapy b) Radiation therapy c) Surgical intervention d) Both chemotherapy and radiation therapy e) Others	 1 2 3 4 5

APPENDIX – J

BLUE PRINT

S.No.	Content	Item	Total Item	Percentage
1	Demographic variables	1-10	10	
2	Knowledge ➢ Chemotherapy Complication Control Protocol	1 - 40	40	53.33%
3	Skill	1- 28	28	53%
	Total	**68**	**68**	**100%**

APPENDIX – L

M.Sc (N) RESEARCH EXECUTION PLAN

S.NO	ACADEMIC CALENDER MONTHS	MAY 2012 to APRIL 2013												MAY 2013 to APRIL 2014											
		M	J	JU	A	S	O	N	D	J	F	M	A	M	J	JU	A	S	O	N	D	J	F	M	A
A	**Conceptual phase**																								
1	Problem identification																								
2	Literature review																								
3	Clinical fieldwork																								
4	Theoretical framework																								
5	Hypothesis formulation																								
B	**Design & planning phase**																								
6	Research design																								
7	Intervention protocol																								
8	Population specification																								
9	Sampling plan																								
10	Data collection plan																								
11	Ethics procedure																								
12	Finalization of plans																								
C	**Empirical phase**																								
13	Data collection																								
14	Data preparation																								
D	**Analytical phase**																								
15	Data analysis																								
16	Interpretation of results																								
E	**Dissemination phase**																								
17	Presentation or report																								
18	Utilization of findings																								
	Calendar months	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4

LESSON PLAN ON

CHEMOTHERAPY COMPLICATION CONTROL PROTOCOL

FOR CAREGIVERS OF CHILDREN WITH CANCER

LESSON PLAN

TOPIC	Chemotherapy complication control protocol
GROUP	Care givers of children with cancer
TIME	45 min
PLACE	Cancer Institute, Adyar
STUDENT TEACHER	Investigator
METHOD OF TEACHING	Lecture cum Demonstration
MEDIUM OF INSTRUCTION	Tamil and English
TEACHING AID	Power point, Booklets

OVER ALL OBJECTIVE: At the end of the teaching, the care givers of children with cancer will gain adequate knowledge and skill regarding chemotherapy complication control measures.

SPECIFIC OBJECTIVE: At the end of the teaching the care givers will be able to:

- Define cancer
- Define chemotherapy
- State the action and uses of chemotherapy drugs
- Explain the methods of administration
- Enlist the routes of chemotherapy administration
- Describe various side effects with its management
- Enumerate the nutrition for children with cancer

S.NO	SPECIFIC OBJECTIVE	CONTENT	INVESTIGATOR ACTIVITY	CARE GIVERS ACTIVITY
		INTRODUCTION Cells are the basic building blocks of the body. There are many different types of cells that make up all of the tissues and organs in the body. Cells divide to make new cells or replace damaged or old cells. The process of cells dividing and passing along genes is usually well controlled. Unfortunately, cells sometimes begin to grow and divide with no control destroying nearby healthy cells and invading the different parts of the body. This is called cancer. **OBJECTIVES OF THE PROTOCOL** This protocol is been developed to train the caregivers of children with cancer with knowledge and skill that enhances the health and wellbeing of cancer children and provides guidelines on managing side effects related to chemotherapy administration.		
1.	Define cancer	**DEFINITION OF CANCER** Cancer is a group of diseases characterised by uncontrolled multiplication and spread of abnormal cells within the body. Childhood cancers can occur suddenly, without early symptoms, and have a high rate of cure. The most common children cancer is leukaemia. Other cancers that affect children include brain tumours, lymphoma, and soft tissue sarcoma. Treatment may include surgery, radiation and/or chemotherapy.	The investigator defines cancer through powerpoint	The caregivers listens to it

		TREATMENT MODALITIES		
2.	Define chemotherapy	**DEFINITION OF CHEMOTHERAPY** Chemotherapy (also called chemo) is a cancer treatment that uses drugs to destroy cancer cells. Chemotherapy works on principle by stopping or slowing the growth of cancer cells, which grow and divide quickly.	The investigator defines chemotherapy through powerpoint	The caregivers listens to it
3.	State the action and uses chemotherapy drugs	**ACTION OF CHEMOTHERAPY** Depending on the type of cancer and its advancement, Chemotherapy can: ➢ Cure cancer ➢ Control cancer ➢ Symptoms or palliative care **USES OF CHEMOTHERAPY** ✓ Make a tumour smaller before surgery or radiation therapy (Neo-adjuvant chemotherapy). ✓ Destroy cancer cells that may remain after surgery or radiation therapy (adjuvant chemotherapy). ✓ Destroy cancer cells that has been reverted (recurrent cancer) or spread to other parts of the body (metastatic cancer).	The investigator states the action and uses of chemotherapy drugs through powerpoint	The caregivers listens to it

4.	Explain the methods and routes of chemotherapy drug administration	**METHODS OF ADMINISTRATION** Chemotherapy is given in cycles. A cycle is a period of chemotherapy treatment followed by a period of rest. For instance, 1 week of chemotherapy followed by 3 weeks of rest. These 4 weeks make up one cycle. The rest period gives the body a chance to build new healthy cells. Chemotherapy is administered during a hospital stay, home, Clinic or outpatient unit in a hospital. Chemotherapy given in following routes: • **Injection refers to the administration of chemotherapy drugs into the** muscle of arm, thigh, hip and in subcutaneous fatty part of arm, leg, or belly. • **Intra-arterial (IA)** refers to administration of chemotherapy drugs directly into the artery. • **Intraperitoneal (IP)** refers to administration of chemotherapy drugs directly into the peritoneal cavity (the area that contains organs such as intestines, stomach, liver, and ovaries). • **Intravenous (IV)** refers to administration of chemotherapy drugs directly into vein. • **Topical** refers to application of chemotherapy drugs in cream form onto the skin. • **Oral**. The chemotherapy is given through oral route in form of tablets, capsules.	The investigator explains the methods and routes of chemotherapy drug administration through powerpoint	The caregivers listens to it

5.	describe the side effects of chemotherapy with their management	**SIDE EFFECTS** Side effects are problems caused during cancer treatment and the major cause includes destroying of healthy cells that lines the mouth, intestine and cells in bone marrow. Most side effects are resolved once chemotherapy is over. **COMMON SIDE EFFECTS OF CHEMOTHERAPY** Anaemia, appetite Changes, bleeding, constipation, diarrhoea, fatigue, hair loss, infection, mouth and throat changes, nausea and vomiting, skin and nail changes. **1. ANAEMIA** Anaemia refers to decrease in the number of red blood cells or their oxygen carrying capacity is insufficient to meet physiological needs of the body. Red blood cells carry oxygen throughout body. As the result of anaemia, the body does not get enough oxygen which leads to short of breath, weak, dizzy, faint, or very tired. Chemotherapy causes anaemia because of destroying healthy cells at bone marrow. The normal Hb level for children includes 12 - 16gms/dl, PCV 37- 47% , RBC 3.8 - 5.5 million cells/volume. Blood transfusion is needed when the normal level goes down.	The investigator describes the side effects of chemotherapy with their management through powerpoint	The caregivers listens to it

		Ways to manage ✓ Take adequate rest: Sleep at least 8 hours each night. ✓ Limit the activities: Carry out activities which are of essential need. ✓ Consume a well-balanced diet: Calories will help to keep the weight up and extra protein can help in repair of tissues that have been harmed by cancer treatment. The diet should include intake of iron-rich food like whole grains, cereals, bread, rice, greens, spinach, vegetables, egg yolk and dates. ✓ Stand up slowly: While getting up from lying down position, sit for a minute before standing because of dizziness. ✓ Monitor the blood cell count throughout the treatment: A blood transfusion is needed when the red blood cell count falls below 100mmol/lit or10 gms/dl. **2. APPETITE CHANGES** Chemotherapy causes appetite changes as a result of nausea, taste changes, oral ulcers or drugs. The changes also results from feeling depressed or tired. Appetite loss last for a days, weeks or months. It is important to eat a well balanced diet which includes plenty of proteins, vitamins and calories. Eating a good diet helps the body to fight against infection and repair tissues that are damaged by chemotherapy. If not it can lead to weight loss, weakness, and fatigue.		

		Ways to manage ✓ Consume 5 to 6 small meals or snacks each day instead of 3 big meals. ✓ Formulate daily schedule for eating meals and snacks: Eat when it is time to eat, rather than eating at times of hungry. ✓ Drink more of milkshakes, juice, or soup than eating solid foods: Liquids helps in providing the essential protein, vitamins, and calories according to the body needs. ✓ Use plastic forks and spoons: chemotherapy drugs gives a metal taste in mouth. Eating with plastic can help in decreasing the metal taste and also helps in prevention of injury to the mouth during the presence of oral ulcers. **3.BLEEDING** Bleeding occurs with lower number of platelet count. Platelets are cells that make the blood to clot. Chemotherapy can lower the number of platelets because of destroying healthy cells at the bone marrow to produce RBC. A low platelet count is called thrombocytopenia. This condition may cause bruises which are rash of tiny, red dots all over the body of the children.		

		Ways to manage **Do's:** ➢ Brush teeth with a very soft toothbrush. ➢ Soften the bristles of toothbrush by running it on hot water before brushing. ➢ Blow nose gently. ➢ Play sports or other activities without getting hurt. ➢ Use sharp objects with caution. ➢ Apply gentle but firm pressure to any cut wounds until the bleeding stops. ➢ Wear shoes all the time even inside the home or hospital. **Don's:** ➢ Use dental floss or toothpicks. ➢ Wear clothes with tight collars, wrists, or waistbands. **4. CONSTIPATION** Constipation refers to less frequency in bowel movements as a result, the stools become hard, dry, and difficult to pass. Chemotherapy induces constipation in children as a result of less intake of fibre diet and water. Children with constipation may belch, pass a lot of gas, and have stomach cramps or pressure in the rectum.		

Ways to manage

- ✓ Drink at least 8 cups (1 – 2 lit) of water and fluids every day: Drink more of water when eating fibre diet. Daily diet should include more of green leafy vegetables, beans, carrot, banana, orange, pineapple, dates.
- ✓ Do activities which strengthens the body like walking, riding a bike, doing yoga. If walking is not possible, learn exercises which can be done in the bed.
- ✓ Keep a record of bowel movements.

5.DIARRHEA

Diarrhea refers to frequent passage of soft, loose, or watery stool more than 5 to 6 times/day. Chemotherapy leads to diarrhea as a result of destroying healthy cells lining the large and small intestines. Diarrhea can also be caused by infections or drugs used to treat constipation.

Ways to manage

Do's

- ✓ Consume 5 or 6 small meals and snacks each day than eating of 3 large meals.
- ✓ Eat food items that are high in salts such as sodium and potassium: The body can lose salts during diarrhea so, it is important to replace them. Foods which can be consumed include bread, tea, rice kanji, coconut water, lime & oranges juice

		✓ Drink 8 to 12 cups of clear liquids and ORS preparation after passing of loose stools each time. ✓ Be gentle in wipe after each bowel movement: Use a baby wipe or water from a spray bottle to clean after bowel movements to prevent skin irritation. **Don'ts** ▪ Drink fluids that are very hot or very cold. ▪ Consume milk or milk products such as ice cream, milkshakes, sour cream, and cheese. ▪ Consume spicy foods such as hot sauce, chilli, and curry dishes. ▪ Consume foods or drinks with caffeine such as regular coffee, cola, and chocolate ▪ Consume foods or drinks that cause gas such as cooked dried beans. ▪ Consume foods that are high in fibre, such as cooked dried beans, raw fruits and vegetables, nuts, and whole-wheat breads and cereals. **6. FATIGUE** Fatigue refers to a feel of weak, weary within oneself which occurs as a result of heavy dose of chemotherapy drugs. Fatigue last for weeks or months during and after chemotherapy treatment. If children receive both radiation therapy and chemotherapy fatigue becomes more severe.		

		Fatigue can also be caused as a result of anaemia, pain, medications, appetite changes, lack of activity, trouble breathing, infection. **Ways to manage** ✓ Avoid performing heavy works: Do quiet activities such as reading books, listen to music or hearing new songs on tape. ✓ Sleep at least 8 hours each night. ✓ Plan daily activity and work. ✓ Keep a diary of work list. ✓ Eat a well balanced diet. **7.HAIR LOSS** Hair loss (also known as alopecia) refers to hair fall. This occurs anywhere on the body, head, face, arms, legs, underarms, or the pubic area between legs. Hair loss often starts by about 2 to 3 weeks after chemotherapy begins. It takes about 1 week for all hairs to fall out. Almost hair grows back 2 to 3 months after chemotherapy is been finished. **Ways to manage** **Before hair loss** ✓ Be gentle during hair washing: Use a mild baby shampoo and dry the hair by		

		patting (not rubbing) it with a soft towel. ✓ Do not use items that can hurt the scalp: These includes straightening or curling irons, brush rollers or curlers electric hair dryers, hair bands and clips, hairsprays, hair dyes. **After hair loss** ✓ Protect scalp by wearing a hat, turban or scarf while going outside, try to avoid going to places that are very hot or very cold, always apply sunscreen or sun block to protect the scalp. ✓ Stay warm. ✓ Sleep on a satin pillow case which creates less friction on the scalp. **8.INFECTION** Infection refers to invasion of the body with micro organism. White blood cells are the protectors of the body which fight against infection. Chemotherapy leads to decrease in the production of new white blood cells from the bone marrow. Signs of infection includes increase in body temperature beyond 100.5°F, dry lips, fatigue, loss of appetite, body pain, irritability.		

		Ways to manage ✓ Wash hands with soap and water regularly ✓ Stay away from people who are sick. This includes people with colds, flu, measles, or chicken pox. ✓ Stay away from crowds. ✓ Be careful while handling with sharp objects. ✓ Maintain a good mouth care. Brush teeth after meals and before going to bed. Use a very soft toothbrush and mouth rinse that does not contain alcohol. ✓ Take care of skin. Do not squeeze or scratch pimples.Use lotion to soften and heal dry, cracked skin. ✓ Wash raw vegetables and fruits well before eating them. ✓ Do not eat raw or undercooked fish, seafood, meat, chicken, or eggs, these may have bacteria that can cause infection. ✓ Do not have food or drinks that are spoiled. **9. MOUTH AND THROAT CHANGES** Mouth and throat changes occurs as a result when the cells that lines mouth, throat, and lips are damaged. Common mouth and throat problems includes dry mouth, changes in taste and smell, infections of gums, teeth, tongue, increased sensitivity to hot or cold foods, mouth ulcers.		

		Ways to manage ✓ Visit a dentist at least 2 weeks before starting chemotherapy ✓ Check mouth and tongue every day. **Do's for healthy oral hygiene during chemotherapy administration** • Brush teeth, gums, and tongue after each meal and at bedtime. • Use an extra-soft toothbrush. • If brushing is painful, try cleaning teeth with cotton swabs. • Use a fluoride toothpaste or special fluoride gel. • Do not use mouthwash that has alcohol. Instead, rinse the mouth 3 to 4 times a day with a solution of 1/4 teaspoon baking soda and 1/8 teaspoon salt in 1 cup of warm water. • Gently floss the teeth every day. **During the times of mouth sores** ✓ Consume foods that are moist, soft, and easy to chew or swallow. These include cooked cereals, mashed potatoes, and scrambled eggs. ✓ Take small bites of food, chew slowly, and sip liquids while eating. ✓ Eat foods that are cool or at room temperature. ✓ Suck on ice chips to relieve mouth pain.		

Don’ts

• Consume Sharp or crunchy foods, such as crackers and potato or corn chips.

• Consume Spicy foods, such as hot sauce, curry dishes and chilli.

• Take more amount of Citrus fruits or juices such as orange, lemon, and grapefruit.

• Consume Food and drinks that have a lot of sugar, such as candy or soda

10. NAUSEA AND VOMITING

Chemotherapy causes nausea, vomiting as a result of destruction of the gastric mucosal cells. Thus antiemetic drugs are given one hour before each chemotherapy treatment for a few days.

Ways to manage

- Consume plenty of water.
- Eat small meals and snacks.
- Consume foods and drinks that are warm or cool (not hot or cold).
- Avoid foods and drinks with strong smells.
- During the feel of vomiting, breathe deeply and slowly or get fresh air.

11.SKIN AND NAIL CHANGES

Skin problems results as a cause of more sensitivity to chemotherapeutic drugs. Minor skin problem during chemotherapy includes redness, itching, peeling, dryness, and

		acne. Chemotherapy drugs also make skin more sensitive to the sun. **Ways to manage** ➢ Apply sun block lotion will going in sunlight. ➢ Avoid direct sunlight. Wear long-sleeved cotton shirts, hats, and pants while going out. ➢ Monitor the colour of nails. When nails may become darkened, brittle, cracked, develops vertical lines or bands consult a physician **NUTRITION FOR CHILDREN WITH CANCER** Nutrition is an important part of the health of all children, especially important for children undergoing cancer treatment. Eating the appropriate foods before, during, and after treatment can help a child feel better and stay stronger. **NUTRIENTS** Children with cancer need protein, carbohydrates, fat, water, vitamins, and minerals. **PROTEINS** The body uses protein to grow, repair tissues and to maintain the integrity of skin, blood cells, immune system, and the lining of the digestive tract. Children with cancer who		

		do not get enough protein might break down muscle which can make it longer for recovery from illness and can lower resistance to infection. After a child has surgery, chemo, or radiation treatments, they may need extra protein to heal tissues and to help prevent infection. Good sources of protein include fish, poultry, lean red meat, eggs, dairy products, nuts and nut butters, dried beans, smashed potato, green leafy vegetables peas and lentils, and soya foods. **CARBOHYDRATES** Carbohydrates are the body's major source of energy. Children being treated with cancer may need 20% to 90% even more calories for tissue healing and energy. The best sources of carbohydrates includes fruits, vegetables, whole grains, vitamins and minerals. **FAT** Fat play an important role in nutrition. Fats and oils serve as a rich source of energy (calories) for the body. The different types of fats for cancer children with their sources are as follows: Monounsaturated fats are found mainly in vegetable oils such as olive, and peanut oils. Polyunsaturated fats are found mainly in vegetable oils such as safflower, sunflower, corn, and flaxseed oils. They are also the main fats found in seafood. Saturated fats (or saturated fatty acids) are mainly found in animal sources, such as meat and poultry, whole or reduced-fat milk, cheese, and butter.		

		WATER Water and liquids are vital to health. All body cells need water to function. If child does not take in enough fluids or loses fluids as a result of vomiting or diarrhoea, they may become dehydrated. Children get water from foods, especially fruits and vegetables. Extra fluids may be needed in case of vomiting or diarrhoea. Thus children with cancer gets affected with problems of constipation when sufficient fluids are not been replaced. **VITAMINS AND MINERALS** The body needs vitamins and minerals for normal growth and development and to function effectively. Vitamins and minerals also help the body to use up energy (calories) from food. The main source of vitamins and minerals includes green leafy vegetables, fresh fruits. Children with chemotherapy treatment should eat a balanced diet to prevent the common side effects.		

RECOMMENDED DIETARY INTAKE PER DAY FOR CANCER CHILDREN

SI.NO.	NUTRIENTS	RECOMMENDED DIETARY INTAKE PER DAY
1.	Protein	80 grams
2.	Carbohydrate	1400 – 2000 calories
3.	Calcium	100 mg
4.	Iron	10 mg
5.	Fat	40 – 50 grams
6.	Water	1 – 2 litres
7.	Vitamins& minerals	400 micrograms

SUMMARY

So far we have discussed about chemotherapy complication and its control measures.

CONCLUSION

These are the various chemotherapy complications the child would be having during the course of the treatment. So appropriate education to the caregiver helps in control of side effects and prevents higher complication

புற்றுநோயால் பாதிக்கப்பட்ட குழந்தைகளின் காப்பாளர்களுக்கான கீமோதெரப்பின் பின்விளைவுகளை கட்டுப்படுத்தும் நெறிமுறைகள்

பாடத்திட்டம்

தலைப்பு	:	**கீமோதெரப்பியினால் ஏற்படும் பின்விளைவுகளை கட்டுப்படுத்தும் நெறிமுறை**
அங்கத்தினர்	:	**புற்று நோயால் பாதிக்கப்பட்ட குழந்தைகளின் காப்பாளர்கள்**
நேரம்	:	**30 நிமிடங்கள்**
இடம்	:	**புற்று நோய் மருத்துவ நிலையம், அடையாறு**
மாணவ ஆசிரியர்	:	**ஆராய்ச்சியாளர்**
கற்பித்தல் முறை	:	**சொற்பொழிவுடன் கூடிய கலந்துரையாடல்**
பயிற்றுவிக்கும் மொழி	:	**தமிழ் மற்றும் ஆங்கிலம்**
படிபிக்க உதவும் கருவி	:	**பவர்பாயிண்ட், சிறு புத்தகங்கள்**

ஒட்டு மொத்த நோக்கம்:

இந்த படிப்பினைக்கு பிறகு, புற்று நோயால் பாதிக்கப்பட்ட குழந்தைகளின் காப்பாளர்கள் கீமோதெரப்பியினால் ஏற்படும் பின்விளைவுகள் மற்றும் அதனை கட்டுப்படுத்தும் முறைகள் பற்றி போதிய அறிவுத்திறனும் ஆற்றலும் பெறுவார்கள்.

குறிப்பான குறிக்கோள்கள்:

இந்த படிப்பினைக்கு பிறகு புற்று நோயால் பாதிக்கப்பட்ட குழந்தைகளின் காப்பாளர்கள் கீழ்க்கண்ட அறிவுத்திறனை பெறுவார்கள்.

1. **புற்று நோய் குறிப்பு வரைக**
2. **கீமோதெரபி விளக்குக**
3. **கீமோதெரப்பி மருந்துகளின் செயல்பாடும் மற்றும் அதன் பயன்களும்**
4. **கீமோதெரப்பி மருந்துகளை கொடுக்கும் முறைகளும் மற்றும் செலுத்துவதற்கான வழிகளை விவரித்தல்**
5. **கீமோதெரப்பியினால் ஏற்படும் பக்க விளைவுகளும் அதனை சமாளிக்கும் முறைகளையும் விவரித்தல்**
6. **புற்று நோயால் பாதிக்கப்பட்ட குழந்தைகளுக்கு தேவையான ஊட்டச்சத்துகளை எண்ணிக்கையிடுதல்**

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளரின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		முன்னுரை: ஒரு உடல் அமைப்பிற்கு அடிப்படையாக அமைவது உயிரணுக்களாகும். உடலில் உள்ள உறுப்புகள் மற்றும் தசைகள் அமைவதற்கு பல வகையான உயிரணுக்கள் உள்ளன புதிய உயிரணுக்கள் உருவாக்கவும், பாதிக்கப்பட்ட உயிரணுக்களுக்கு அல்லது பழைய உயிரணுக்களுக்கு பதிலாகவும் உயிரணுக்கள் பிரிகின்றன உயிரணுக்கள் பிரிந்து மரபணுவுடன் செல்வது பொதுவாக கட்டுப்படுத்தப்படுகிறது. துரதிஷ்டவசமாக சில சமயங்களில் உயிரணுக்கள் கட்டுப்பாடு இல்லாமல் வளர்ந்து பிரியும் போது, அது தன் அருகிலுள்ள ஆரோக்கியமான உயிரணுக்களை அழிப்பதுடன் மற்ற உறுப்புகளையும் அழிக்கிறது. இதை தான் புற்று நோய் என்கிறோம். **குறிப்புப் பத்திரத்தின் குறிக்கோள்கள்:** புற்று நோயால் பாதிக்கப்பட்ட குழந்தைகளின் ஆரோக்கியமான முன்னேற்றத்தை பராமரிக்கும் பொருப்பாளர்களுக்கு தகுந்த அறிவுத்திறனும் மற்றும் ஆற்றலும் பயிற்சி அளிக்கப்படுகிறது. கீமோதெரெபியினால் ஏற்படும் பக்க		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளரின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		விளைவுகளை சமாளிக்க இந்த குறிப்புப் பத்திரம் வழிகாட்டியாக உள்ளது.		
1	புற்று நோய் குறிப்பு வரைக	**புற்று நோயின் விரிவாக்கம்:** உடலில் முறை தவறிய உயிரணுக்கள் கட்டுப்பாடில்லாமல் பெருகி பரவுவதால் ஏற்படும் நோயே புற்று நோயாகும். குழந்தைகளுக்கு ஏற்படக் கூடிய புற்று நோய் திடீரென்று ஏற்படக் கூடியவை. அது முன் எச்சரிக்கைக்கு உண்டான அறிகுறிகளை ஏற்படுத்தாது. அதை குணப்படுத்தும் வழிகள் அதிக அளவில் உள்ளது. குழந்தைகளுக்கு ஏற்படும் பொதுவான புற்று நோய் லுக்கிமியா. மூளையில் ஏற்படும் புற்று நோய், லிம்போமா, மென்மை திசுக்களில் ஏற்படும் சர்கோமா. அறுவை சிகிச்சை, கீமோதெரப்பி, கதிர் வீச்சு மூலமாகவும் சிகிச்சை அளிக்கப்படுகின்றது.	ஆராய்ச்சியாளர் புற்று நோய் பற்றி பவர்பாய்ண்ட் மூலம் விளக்குகிறார்	பொறுப்பாளர் கவனிக்கிறார்
		சிகிச்சை முறைகள்		
2.	கீமோதெரப்பி விளக்குக	**கீமோதெரப்பியின் விளக்கம்:** புற்று நோயின் உயிரணுக்களை மருத்துகளைக் கொண்டு அழிக்க உதவும் சிகிச்சையே கீமோதெரபி ஆகும். வேகமாக வளர்ந்து பரவும் புற்றுநோய் உயிரணுக்களின் வளர்ச்சியை நிறுத்துவதற்கோ குறைப்பதற்கோ கீமோதெரப்பி சிகிச்சை பணி புரிகிறது.	பவர்பாயிண்ட் மூலம் ஆராய்ச்சியாளர் கீமோதெரப்பியை விவரிக்கிறார்	பொறுப்பாளர்கள் கவனிக்கின்றனர்

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளரின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
3.	கீமோதெரப்பி மருந்துகளின் செயல்பாடும் மற்றும் அதன் பயன்களும்	**கீமோதெரப்பியின் செயல்கள்:** புற்று நோயின் வகை மற்றும் அதன் முன்னேற்றத்தை பொறுத்து கீமோதெரப்பி இவ்வாறு செயல்படுகிறது: • புற்று நோயை குணப்படுத்துகிறது. • புற்று நோயை கட்டுப்படுத்துகிறது. • அறிகுறிகள் மற்றும் வலியைக் குறைக்கிறது. **கீமோதெரப்பியின் உபயோகங்கள்:** • அறுவை சிகிச்சை அல்லது கதிர்வீச்சு சிகிச்சைக்கு முன்பே புற்று நோய் சம்மந்தப்பட்ட கட்டிகளை சிறியதாக குறைக்கின்றது. (நியோ - புதிய துணை கீமோ தெரப்பி) • அறுவை சிகிச்சை அல்லது கதிர்வீச்சு சிகிச்சைக்கு பின்பும் தங்கியிருக்கும் புற்று நோய் உயிரணுக்களை அழிக்கின்றது. (துணை கீமோதெரப்பி) • மறுபடியும் உருவாகும் அல்லது மற்ற உறுப்புகளுக்கு பரவும் புற்று நோய் உயிரணுக்களை அழிக்கிறது.	ஆராய்ச்சியாளர் பவர்பாயிண்ட் மூலம் கீமோதெரப்பி மருந்துகளின் செயல்பாடும் மற்றும் அதன் பயன்களை பற்றி உரைக்கிறார்	பொறுப்பாளர்கள் கவனிக்கிறார்கள்.
4.	கீமோதெரப்பி மருந்துகளை கொடுக்கும் முறைகளும்	**கீமோதெரப்பியை செயல்படுத்தும் வழிமுறைகள்:** சுழற்சி முறையில் கீமோதெரப்பி சிகிச்சை அளிக்கப் படுகின்றது. ஒரு கீமோதெரப்பி சுழற்சி முடிவில் ஓய்வு எடுக்கும்	ஆராய்ச்சியாளர் கீமோதெரப்பி மருந்துகளை	பொறுப்பாளர்கள் கவனிக்கின்றனர்

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளரின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
	மற்றும் செலுத்துவதற்கான வழிகளை விவரித்தல்	காலம் நிர்ணயிக்கப்படுகிறது. உதாரணமாக ஒரு வாரம் அளிக்கும் கீமோதெரப்பியின் கால அளவை தொடர்வது மூன்று வார கால ஓய்வாகும். இந்த நான்கு வாரங்கள் சேர்ந்தது ஒரு சுற்று முறையாகும். கீமோதெரப்பி சிகிச்சை மருத்துவமனையில் தங்கியோ அல்லது வீட்டில் இருந்த படியோ எடுத்துக்கொள்ளலாம். கீமோதெரப்பி அளிக்கப்படும் வழிகள்: ஊசிமுறை, இன்ட்ரா ஆர்டீரியல், இன்ட்ரா பெரிடோனியல், இன்ட்ரா வீனஸ், டாபிக்கள், ஓரல் வழியாக கொடுக்கப் படுகிறது.	கொடுக்கும் முறைகளும் மற்றும் செலுத்துவதற்கான வழிகளை பவர்பாயிண்ட் மூலம் விளக்குதல்	
5.	கீமோதெரப்பியினால் ஏற்படும் பக்க விளைவுகளும் அதனை சமாளிக்கும் முறைகளையும் விவரித்தல்	**பக்க விளைவுகள்:** புற்று நோய் சிகிச்சையினால் ஏற்படும் பிரச்சனைகளே பக்க விளைவுகளாகும். இச்சிகிச்சையினால் வாய், குடல் சுற்றியுள்ள ஆரோக்கியமான உயிரணுக்கள் பெரிய அளவில் பாதிக்கப்படுவதால் பக்க விளைவுகள் ஏற்படுகின்றன. **கீமோதெரப்பி சிகிச்சையினால் ஏற்படும் பொதுவான பக்க விளைவுகள்:** இரத்தசோகை, பசியின்மை, இரத்த போக்கு, மலச்சிக்கல், வயிற்றுப்போக்கு, மன உலைச்சல், தலை முடி கொட்டுதல், நோய் தொற்று, வாய் மற்றும் தொண்டையில்	ஆராய்ச்சியாளர் கீமோதெரப்பியினால் ஏற்படும் பக்க விளைவுகளும் அதனை கட்டுப்படுத்தும் முறைகளை பவர்பாயிண்ட் மூலம் விளக்குதல்	பொறுப்பாளர்கள் கவனிக்கின்றனர்

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		மாறுதல்கள், வாந்தி மற்றும் குமட்டல், சருமம் மற்றும் நகங்களில் மாறுதல்கள்.		
		1. இரத்த சோகை		
		சிவப்பு இரத்த அணுக்களின் எண்ணிக்கை குறைவதே இரத்தசோகை. இதனால் உடலின் தேவைகளை அளிக்கும் பிராணவாயுவின் திறன் குறைந்துக் காணப்படுகின்றது. சிவப்பு இரத்த அணுக்கள் பிராணவாயுவை உடல் முழுவதும் எடுத்துச் செல்கிறது. இரத்த சோகையினால், உடலிற்கு போதுமான பிராண வாயு கிடைக்காதலால், குறைந்த சுவாசம், பலவீனம், தலைச்சுற்றல், மயக்கம் மற்றும் சோர்வு ஏற்படுகின்றது. எலும்பு மஞ்சையிலுள்ள ஆரோக்கியமான உயிரணுக்களை கீமோதெரப்பி அழிப்பதனால் இரத்த சோகை ஏற்படுகின்றது. குழந்தைகளுக்கான வழக்கமான ஹீமோகுலோபின் அளவு, 12 – 16gms/dl cell volume. இந்த வழக்கமான அளவு குறைந்தால் இரத்த மாற்றம் தேவைப்படுகின்றது.		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		கட்டுப்படுத்தும் வழிமுறைகள்: • போதுமான ஓய்வு எடுக்க வேண்டும். எட்டு மணி நேரமாவது ஒவ்வொரு இரவும் உறங்க வேண்டும். • வேலைகளை குறைத்துக்கொள்ள வேண்டும். அவசியமான வேலைகளை மட்டுமே மேற்கொள்ள வேண்டும். • சீரான உணவையே உண்ண வேண்டும். உணவில் உள்ள சத்துக்கள் எடையை உயர்த்துகிறது. புற்று நோய் சிகிச்சையினால் பாதிக்கப்பட்ட தசைகளை சரி செய்ய கூடுதல் புரதச்சத்து உதவுகிறது. இரும்பு சத்து அதிகமுள்ள முழு தானிய வகைகள், ரொட்டி, அரிசி, பச்சை காய்கறிகள், கீரைகள், முட்டையின் மஞ்சள் கரு மற்றும் உலர்ந்த பழங்கள் முதலியவற்றை உணவில் சேர்த்து கொள்ள வேண்டும். • மெதுவாக எழுந்து நிற்க வேண்டும். தலைச்சுற்றுதல் ஏற்பட வாய்ப்புள்ளதால் படுத்துவிட்டு எழும் போது சில நிமிடங்கள் உட்கார்ந்து விட்டு பிறகே எழுந்து நிற்க வேண்டும். • சிகிச்சை காலம் முழுவதும் இரத்த அணுக்களின் எண்ணிக்கையை கண் காணித்தல் அவசியம்:		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளரின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		வழக்கமான அளவான 100mmol/lit or 10 gms/dl இருந்து சிவப்பு இரத்த அணுக்கள் குறைந்தால் இரத்த மாற்றம் தேவைப்படும்.		
		2. பசியின்மை		
		கீமோதெரப்பி சிகிச்சையினால் ஏற்படும் குமட்டல், ருசி மாறுதல், வாய் புண் அல்லது மருந்தால் பசி எடுப்பதில் மாற்றங்கள் ஏற்படுகின்றது. மன அழுத்தம் அல்லது சோர்வினால் கூட இந்த மாற்றங்கள் ஏற்படுகின்றது. பசியின்மை நாட்கள், வாரங்கள் அல்லது மாதங்கள் கூட நீடிக்கலாம். அதிக புரதச்சத்து, வைட்டமின், மற்றும் கலோரி உள்ள உள்ள உணவை உண்ணுவது மிகவும் அவசியம். தொற்று நோய்களை எதிர் கொள்ளவும் கீமோதெரப்பி சிகிச்சையினால் பாதிக்கப்பட்ட தசைகளை பழுது பார்க்கவும் தரமான உணவு உண்ணுவதால் பலன் அளிக்கின்றது. அவ்வாறு உணவை உண்ணாததால் எடை குறைவு, பலவீனம், மன அழுத்தம் ஏற்படுகின்றது.		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		கட்டுப்படுத்தும் வழிமுறைகள்: • மூன்று வேலை உண்ணும் உணவை சிறிது சிறிதாக மூலம் ஐந்து முதல் ஆறு வேலை உண்ணுதல் வேண்டும். • உணவு அட்டவணையை தயாரிக்க வேண்டும். பசித்த பிறகு சாப்பிடாமல் நேரத்திற்கு சாப்பிட வேண்டும். • பால், பழச்சாறு, சூப் ஆகியவற்றை அன்றாட உணவை விட அதிக அளவில் உட்கொள்ளுதல் வேண்டும். நம் உடலுக்கு தேவைப்படும் போதுமான புரதச்சத்து, வைட்டமின் மற்றும் கலோரிஸ் நீர் ஆகாரங்கள் அதிக அளவில் தருகின்றன. • "பிளாச்டிக்" கரண்டி அல்லது கொத்துக்கரண்டி உபயோகிக்க வேண்டும். ஏனெனில் கீமோதெரப்பி சிகிச்சை வாயில் உலோக ருசி தருகின்றது. பிளாஸ்டிக்கினால் சாப்பிடுவதால் வாயில் ஏற்படும் உலோக ருசி ஏற்படுகின்றது. குறைந்து மேலும் வாயில் ஏற்பட்டிருக்கும் வாய் புண்களை பாதிக்காமலும் இருக்க உதவுகிறது.		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		3. இரத்த போக்கு		
		பிளேட்லெட் எண்ணிக்கை குறைவதால் இரத்தப் போக்கு ஏற்படுகிறது. இரத்தத்தை உறைய வைக்கும் உயரணுக்களே பிளேட்லெட்ஸ். கீமோதெரப்பி எலும்பு மஞ்சையில் சிவப்பு இரத்த அணுக்களை உற்பத்தி செய்யும் ஆரோக்கியமான உயரணுக்களை அழிப்பதால் பிளேட்லெட் எண்ணிக்கை குறைகிறது. குறைந்த பிளேட்லெட் என்ணிக்கை த்ராம்போசடோபினியா என்று அழைக்கப் படுகின்றது. இந்த நிலைமை ஊமை காயத்தை ஏற்படுத்துகிறது. அவை குழந்தைகளின் உடம்பு முழுவதும் சிறிய சிகப்பு புள்ளிகளாக ஏற்படுத்துகின்றது. **கட்டுப்படுத்தும் வழிமுறைகள்:** **பின்பற்றக்கூடியவை:** • பல் துலக்குவதற்கு மிருதுவான பல் துலக்கும் தூரிகையை உபயோகிக்க வேண்டும். • பல் துலக்கும் தூரிகையிலுள்ள நார்களை வெது வெதுப்பான நீரில் இட்டு மிருதுவான நீரில் இட்டு மிருதுவான பின்னரே உபயோகிக்க வேண்டும்.		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		• மெதுவாக தும்முதல் வேண்டும். • விளையாடும் போதும் மற்ற வேலைகளை செய்யும் போதும், காயம் ஏற்படாமல் பார்த்துக் கொள்ள வேண்டும். • கூர்மையான பொருள்களை கவனமாக உபயோகிக்க வேண்டும். • வெட்டு காயங்களின் மீது இரத்த போக்கு நிற்கும் வரை அழுத்த வேண்டும். • வீட்டின் உள் இருந்தாலும், மருத்துவமனையில் இருந்தாலும் சரி எல்லா நேரங்களிலும் காலணிகளை அணிய வேண்டும். **பின்பற்றக்கூடாதவை:** • பல் குச்சியை உபயோகிக்கக் கூடாது. • கழுத்து, மணிக்கட்டு மற்றும் இடுப்பு ஆகியவற்றில் இருக்கும் ஆடைகளை அணிவதை தவிர்த்தல் வேண்டும்.		
		4. மலச்சிக்கல்		
		குறைந்த பட்ச குடல் அசைவுகளால், மலம் கெட்டியாகவும் வறண்டும் வெளிவருவதற்கு கடினமாகவும் இருப்பதே மலச்சிக்கல். குறைந்த நார்சத்தும், தண்ணீரும்		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		உட்கொள்வதால் குழந்தைகளிடத்தில் கீமோதெரப்பி மலச்சிக்கல் உருவாகின்றது. மலச்சிக்கல் இருக்கும் குழந்தைகளுக்கு வாந்தி, வாயு அதிகபடி வெளியேறுதல், வயிற்று வலி, அல்லது மலக்குடலில் அழுத்தம் ஏற்படுத்துகின்றது. **கட்டுப்படுத்தும் வழிமுறைகள்:** • தினந்தோறும் குறைந்தது 8 கப் (1-2 லிட்டர்) தண்ணீர் மற்றும் நீர் ஆகாரங்களை அருந்த வேண்டும். நார் சத்து உணவுகள் அதிக அளவு உண்ண வேண்டும். தினந்தோறும் உணவில் அதிகபடியாக பச்சை கீரைகள், காய்கறிகள், பீன்ஸ், கேரட், வாழைப்பழம், ஆரஞ்சு அன்னாசிபழம், பேரிச்சம்பழம் சேர்த்து உணவு உட்கொள்ள வேண்டும். • உடம்பிற்கு வலிமைத்தரக்கூடிய நடைபயிற்சி, இருச்சக்கர வாகனம் ஓட்டுதல், யோகா ஆகிய செயல்களை செய்ய வேண்டும். நடைபயிற்சி செய்ய இயலாவிடில், கட்டிலில் இருந்தபடியே செய்யக் கூடிய உடற்பயிற்சிகளை கற்று கொள்ள வேண்டும்.		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளரின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		• குடல் அசைவுகளின் கணக்கை வைத்துக்கொள்ள வேண்டும்.		
		5 வயிற்றிப்போக்கு		
		ஒரு நாளைக்கு 5 முதல் 6 முறை வரை தண்ணீர் போல் மலம் வெளியேறுவது வயிற்று போக்காகும். கீமோதெரப்பி சிகிச்சையினால் பெருங்குடல் மற்றும் சிறுகுடலை சுற்றி உள்ள ஆரோக்கியமான உயரணுக்கள் அழிவதால் வயிற்றுப் போக்கு ஏற்படுகின்றது. மலச்சிக்கலுக்கு எடுத்துக் கொள்ளும் மருந்துகளாலும், தொற்றுகலாலும் வயிற்றுப்போக்கு ஏற்படுகின்றது. **கட்டுப்படுத்தும் வழிமுறைகள்:** **செய்ய வேண்டியவை:** • ஒரு நாளைக்கு 3 முறை உணவை உண்ணுவதை விட 5 அல்லது 6 முறை சிறிய அளவில் உணவு உட்கொள்ளுதல் வேண்டும். • அதிக அளவு உப்பு உள்ள சோடியம், பொட்டாசியம் ஆகிய உணவையே உண்ண வேண்டும். வயிற்றுப் போக்கின் போது இழக்கும் தாதுப்புகளை திரும்பவும் பெறுவது		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளரின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		அவசியம். ரொட்டி, தேநீர், அரிசி கஞ்சி, இளநீர், எலுமிச்சை மற்றும் ஆரஞ்சு பழரசம் ஆகிய உணவு வகைகளை உண்ண வேண்டும். • ஒவ்வொரு முறை வயிற்று போக்கிற்கு பிறகு 8 முதல் 12 கப் தெளிந்த நீரும் ORS தயாரிப்பு அருந்த வேண்டும். **பின்பற்றக் கூடாதவை:** • மிகுந்த சூடான அல்லது குளிர்ந்த நீரையே அருந்த கூடாது. • பால் அல்லது பால் தயாரிப்புகளான ஐஸ் கிரீம், பால், புளித்த க்ரீம், பாலாடை முதலியவற்றை உண்ணக் கூடாது. • மசாலா உணவுகளை சூடான குழம்பு, மிளகாய், காய்கறி ஆகியவற்றை உண்ணக்கூடாது. • கஃபெயின் நிறைந்த உணவு அல்லது நீர் ஆகாரங்களான காப்பி, கோலா, மிட்டாய் ஆகியவற்றை உண்ணக் கூடாது. • வாயு ஏற்படுத்தக் கூடிய உணவு அல்லது நீர் ஆகாரங்களின் காய்ந்த பட்டாணி வகைகள் உண்ணக் கூடாது. • நார் சத்து நிரம்பிய சமைத்த காய்ந்த பட்டாணி, பழுக்காத		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளரின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		பழங்கள், சமைக்காத காய்கறிகள், கொட்டை வகைகள், முழு கோதுமையிலான ரொட்டி, தானியங்கள் ஆகியவற்றை உண்ணக்கூடாது.		
		6. மன அழுத்தம்		
		அதிக அளவில் கீமோதெரப்பி மருந்துகளை உட்கொள்ளுவதால் உடல் பலவீனம், களைப்பு மற்றும் மன அழுத்தம் ஏற்படுத்துகிறது. கீமோதெரப்பி சிகிச்சையின் போதும் அதற்கு பின்பும் மாத கணக்கில் மன அழுத்தம் நீடிக்கிறது. கதிர்வீச்சு மற்றும் கீமோதெரப்பி சிகிச்சை ஆகிய இரண்டும் பெறும் குழந்தைகளுக்கு மன அழுத்தம் அதிக அளவில் கடுமையாகக் காணப்படுகிறது. இரத்த சோகை, வலி, மருந்து, பசித்தலில் மாற்றம், வேலைகள் செய்யாமல் இருத்தல், சுவாசிப்பதில் பிரச்சினை, நோய்த்தொற்று ஆகியவற்றினால் கூட மன அழுத்தம் ஏற்படலாம். **கட்டுப்படுத்தும் வழிமுறைகள்:** • கடுமையான வேலைகளை செய்வதை தவிர்க்க வேண்டும். புத்தகம் படித்தல், இசையைக் கேட்டல், அல்லது ஒலி நாடாவில் புது இசைகளை கேட்டல் போன்ற அமைதியான வேலைகளை செய்தல் வேண்டும்.		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		• ஒவ்வொரு இரவும் 8 மணி நேரமாவது உறங்க வேண்டும். • தினமும் செய்யக்கூடிய செயல்களையும், வேலைகளையும் அட்டவனை மூலம் செய்தல் வேண்டும். • தினந்தோறும் செய்யும் வேலைகளை ஒரு குறிப்பு புத்தகத்தில் குறித்துக் கொள்ள வேண்டும். • நல்ல சத்துள்ள உணவை உட்கொள்ள வேண்டும்.		
		7. தலை முடி இழப்பு		
		முடி உதிர்தல் என்பதே முடி இழப்பாகும். இது உடம்பில் தலை, முகம், கை, கால் முதலிய இடங்களில் எங்கு வேண்டுமானாலும் நிகழலாம். பெரும்பாலும் கீமோதெரப்பி ஆரம்பித்த 2 முதல் 3 வாரங்களில் முடி உதிர்வு ஏற்படுகின்றது. எல்லா முடிகளும் உதிர ஒரு வாரம் தேவைப்படுகிறது. பின்னர் கிமோதெரப்பி முடிந்த 2 முதல் 3 மாதங்களில் இழந்த முடி வளரத்தொடங்குகின்றது. **கட்டுப்படுத்தும் வழிமுறைகள்:** **தலைமுடி உதிர்வதற்கு முன்:** • தலை முடியை மென்மையாக அலச வேண்டும்: மிதமான குழ்ந்தைகளுக்கு பயன்படுத்தும் ஷாம்பூவை உபயோகப்		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளரின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		படுத்த வேண்டும் மற்றும் தலையை உளர வைக்க தலையை தலைத்துத்துவட்டியால் தட்டிவிட வேண்டும் (தேய்க்கக் கூடாது). • உச்சந்தலையை பாதிக்கும் பொருட்களை உபயோகப்படுத்தக் கூடாது: நேராக்கும் மற்றும் சுருளையாக்கும் இஸ்திரி பொருட்களையும், தூரிகை உருளைகள் அல்லது சுருள செய்யும் கருவிகள், மின்சாரம் மூலம் தலைமுடி உளர வைக்கும் சாதனங்கள், முடி பட்டைகள் மற்றும் கிளிப்புகள், முடி ஸ்ப்ரேக்கள் மற்றும் முடிச்சாயங்கள் ஆகியவை அடங்கும். **தலைமுடி உதிர்ந்த பின்பு:** • வெளியே செல்லும் போது தொப்பி, தலைப்பாகை மற்றும் தாவணி ஆகியவற்றால் தலைக்கு அணிந்து செல்ல வேண்டும். மிகுந்த வெப்பமான அல்லது குளிர்ந்த இடத்திற்கு செல்வதை தவிர்க்க வேண்டும். சூரிய கதிர் தாக்கத்தை தவிர்க்க சன்ஸ்கிரீன் மற்றும் அதை மறைக்கும் பொருட்களை உபயோகப்படுத்தி உச்சந்தலையை பாதுகாக்க வேண்டும்.		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளரின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		8. நோய்தொற்று		
		நோய்த்தொற்று என்பது உடலில் நுண்ணுயிரிகளால் ஏற்படுத்தும் தாக்கத்தை குறிக்கிறது. வெள்ளை இரத்த அணுக்கள் உடலில் ஏற்படும் நோய்த்தொற்றை எதிர்த்து போராடி உடலை காக்கின்றது. கிமோதெரப்பி புதிய வெள்ளை இரத்த அணுக்கள் எலும்பு மஜ்ஜையிலிருந்து உட்பத்தியை குறைக்கின்றது. இதனால் நோய்த்தொற்று ஏற்படுகின்றது. நோய்த்தொற்றிற்கான அறிகுறி என்னவென்றால், உடல் வெப்பம் 100.5°F தாண்டுவதும், உலர்ந்த உதடு, சோர்வு, பசியின்மை, உடல் வலி ஆகியவையாகும். **கட்டுப்படுத்தும் வழிமுறைகள்:** • கைகளை தவறாமல் சோப்பு மற்றும் தண்ணீரால் கழுவ வேண்டும். • உடல் நலமற்றவர்களிடமிருந்து ஒதுங்கி இருத்தல் வேண்டும். அவை சளி, காய்ச்சல், தட்டம்மை அல்லது சின்னம்மை ஆகும். • கூட்டம் நிறைந்த இடங்களுக்கு செல்வதை தவிர்த்தல்		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		வேண்டும். • கூர்மையான பொருட்களை கையாளும் போது கவனமாக இருத்தல் வேண்டும். • வாயை நல்ல முறையில் பராமரிக்க வேண்டும். பற்களை சாப்பிட்ட பின்பும் மற்றும் உறங்க செல்லும் முன்பும் துலக்க வேண்டும். மென்மையான பல் தூரிகையை பயன்படுத்த வேண்டும். ஆல்கஹால் இல்லாத வாய் கொப்பளித்தல் பொருளை பயன்படுத்துதல் வேண்டும். • சருமத்தை சீராக பராமரிக்க வேண்டும். பருக்களை தேய்பதும், பிதுக்குவதும் கூடாது. • பச்சை காய்கறிகள் மற்றும் பழங்களை சாப்பிடுவதற்கு முன் சுத்தமான நீரினால் கழுவ வேண்டும். • பச்சை மற்றும் பாதி வேக வைத்த மீன், கடல் உணவுகள், இறைச்சி, கோழிக்கறி அல்லது முட்டை உண்ணக்கூடாது. ஏனென்றால் இவற்றில் நோய்த்தொற்றை உருவாக்கும் பாக்டீரியாக்கள் உள்டங்கி இருக்கும். • கெட்டுப்போன உணவு மற்றும் நீர் ஆகாரங்களை தவிர்க்க வேண்டும்.		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		9. வாய் மற்றும் தொண்டையில் மாற்றங்கள்		
		வாய், தொண்டை மற்றும் உதடுகளில் உள்ள செல்கள் பழுதடைவதால் வாய் மற்றும் தொண்டையில் மாற்றங்கள் ஏற்படுகின்றது. உலர்ந்த உதடு, ருசி மற்றும் வாசனை, ஈறுகளில் நோய்தொற்று, பற்கள், நாக்கு, சூடு மற்றும் குளிர்ந்த உணவுகளை அதிகபடியாக உணர்தல், வாய் புண்கள் ஆகியவை பொதுவாக ஏற்படும் வாய் மற்றும் தொண்டை பிரச்சனைகளாகும். **கட்டுப்படுத்தும் வழிமுறைகள்:** • கீமோதெரப்பு துவங்குவதற்கு குறைந்தது இரு வாரங்களுக்கு முன்பு பல் மருத்துவரை கலந்து ஆலோசிக்க வேண்டும். • தினமும் வாய் மற்றும் நாக்கை சோதனை செய்யதல் வேண்டும். **கீமோதெரப்பு கொடுக்கும் போது வாய் தொற்று வராமல் பராமரிக்கும் முறை:** • ஒவ்வொரு முறையும் சாப்பிட்ட பின்பும் மற்றும் உறங்கும்		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		முன்பும் பல், ஈறு மற்றும் நாக்கை பல் துலப்பானால் துலக்க வேண்டும். • மிதமாக இருக்கும் பல் தூரிகைகளை பயன்படுத்த வேண்டும். • பல் துலக்கும் போது வலி இருந்தால், மென்மையான பஞ்சுகளை பயன்படுத்தி பற்களை சுத்தம் செய்ய வேண்டும். • ஃப்ளோரைடு பற்பசை மற்றும் ஃப்ளோரைடு ஜெல் முதலியவற்றை பல்துலக்க பயன்படுத்த வேண்டும். • ஆல்கஹால் நிறைந்த வாய் கொப்பளிப்பானை உபயோகப் படுத்த கூடாது. அதற்கு பதிலாக, ஒரு நாளைக்கு 3 முதல் 4 முறை 1/4 தேக்கரண்டி உப்பு நிறைந்த 1 கப் மிதமான தண்ணீர் கொண்டு வாயை கொப்பளிக்க வேண்டும். **வாய்ப்புண் உள்ள சமயங்களில்:** • எளிதில் மெல்லக்கூடிய அல்லது முழுங்கக்கூடிய உணவை உட்கொள்ளுதல் வேண்டும். அவைகள் வேகவைத்த தானியங்கள், பிசைந்த உருளைக் கிழங்கு, மற்றும் துருவிய முட்டை ஆகும்		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		• சிறிய அளவு உணவை உட்கொண்டு, மெதுவாக மென்று நீரை வாயில் நனைத்துக்கொண்டு உண்ண வேண்டும். **பின்பற்றக்கூடாதவை:** • கூர்மையான மற்றும் முறுமுறுப்பான உணவுகளை உட்கொள்ள கூடாது. • காரமான உணவான சூடான சாஸ், கறி உணவுகள் மற்றும் மிளகாய் ஆகியவற்றை உண்ண கூடாது. • அதிகபடியான சிட்ரஸ் பழங்கள் மற்றும் சாறுகள் நிறைந்த ஆரஞ்சு, எலுமிச்சம் மற்றும் திராட்சை பழங்களை உட்கொள்ள கூடாது. • அதிகபடியான சர்க்கரை உள்ள உணவு மற்றும் பானங்களான மிட்டய் அல்லது சோடாவை உட்கொள்ளுதலை தவிர்த்தல் நல்லது.		
		10. குமட்டல் மற்றும் வாந்தி		
		குடல் செல்கள் கீமோதெரப்பியினால் அழிக்கப்படுவதால் குமட்டல் மற்றும் வாந்தி ஏற்படுகின்றது.		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		கட்டுப்படுத்தும் வழிமுறைகள்: • அதிகபடியான தண்ணீரை அருந்துதல் வேண்டும். • சிறிய அளவு உணவு மற்றும் நொறுக்குத்தீனியை உட்கொள்ளுதல் வேண்டும். • மிதமான சூடு மற்றும் குளிர்ச்சியான உணவு மற்றும் பானங்கள் உட்கொள்ள வேண்டும் (சுடான அல்லது மிகவும் குளிர்ச்சியான கூடாது). • வலுவான நறுமணம் கொண்ட உணவு மற்றும் பானங்களை தவிர்க்க வேண்டும். • வாந்தி வரும் அறிகுறி தெரியும் போது மூச்சை ஆழமாக மற்றும் மெதுவாக உள்ளிழுக்க வேண்டும் அல்லது நல்ல காற்றை சுவாசிக்க வேண்டும்.		
		11. தோல் மற்றும் நகங்களின் மாற்றங்கள்		
		கீமோதெரப்பியினால் தோல் அதிகமான உலர்வதால் தோல் பிரச்சனைகள் ஏற்படுகின்றது. சிறிய தோல் பிரச்சனைகளான சிவத்தல், அறித்தல், உரித்தல் மற்றும் முகப்பரு ஆகியவை கீமோதெரப்பியினால் ஏற்படுகின்றது.		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		கட்டுப்படுத்தும் வழிமுறைகள்: • வெய்யிலில் வெளியே செல்லும் போது சன் லோஷன் பயன்படுத்த வேண்டும். • நேரடியான சூரிய கதிர் தாக்கத்தை தவிர்க்க வேண்டும். வெளியே செல்லும் போது நீளமான கை பொருந்திய மேலாடைகள், தொப்பி மற்றும் காற்சட்டையை அணிந்து செல்ல வேண்டும். • நகங்களின் நிறத்தை கண்காணிக்க வேண்டும். நகங்கள் கருப்பாகவும், உடையவும், வெடிப்பு, நேரான வரிகள் மற்றும் பட்டைகள் ஏற்பட்டல் மருத்துவரை அணுகவும்.		
6.	புற்று நோயால் பாதிக்கப்பட்ட குழந்தைகளுக்கு தேவையான ஊட்டச்சத்துகளை எண்ணிக்கையிடு	**புற்று நோய் உள்ள குழந்தைகளுக்கான ஊட்டச்சத்து உணவுகள்:** குழந்தைகளின் உடல் நலத்திற்கு ஊட்டச்சத்து உணவுகள் ஒரு முக்கியனான பங்கு வகிக்கின்றது. இவை முக்கியமாக புற்று நோயால் பாதிக்கப்பட்டு கீமோதெரப்பி எடுத்துக்கொள்ளும் குழந்தைகளுக்கு தேவைப்படுகிறது. சரியான உணவை சிகிச்சைக்கு முன்பும், சிகிச்சை எடுத்துக்கொள்ளும் போதும் மற்றும் எடுத்த பின்பும் ஏற்பதால் குழந்தைகள் நன்றாகவும் மற்றும் வலிமையாகவும் இருப்பதை		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		உணர்வார்கள்.		
		ஊட்டச்சத்து		
		புற்று நோய் உள்ள பிள்ளைகளுக்கு புரதம், கார்போஹைட்ரேட், கொழுப்பு, தண்ணீர், வைட்டமின்கள் மற்றும் கனிமங்கள் தேவைப்படுகின்றன.		
		புரதம்		
		உடலானது வளர்வதற்காகவும், திசுக்களை பழுது பார்க்கவும், தோல், இரத்த நாளங்கள், நோய் எதிர்ப்பு அமைப்பு, செரிமான புறணிகள் ஆகியவற்றை ஒருமைப் படுத்துவதற்கும் புரதத்தை பயன்படுத்துகிறது. புற்று நோய் உள்ள குழந்தைகள் தேவையான புரதத்தை எடுத்துக் கொள்ளவில்லை என்றால் அவர்களுடைய தசைகள் உடைந்து நோயிலிருந்து குணமடைவதற்கு நெடு நாட்கள் ஆகின்றது மேலும் அவர்களுடைய நோய் எதிர்ப்பு சக்தியை குறைக்கிறது. குழந்தைகள் அறுவை சிகிச்சை, கீமோதெரப்பி அல்லது கதிர் வீச்சு மூலம் சிகிச்சை எடுத்துக் கொண்டதற்கு பின் அவர்களுக்கு கூடுதல் புரதச்சத்து திசுக்கள் குணமடையவும் மற்றும் நோய்தொற்றுகளைத் தவிர்க்கவும் தேவைப்படுகிறது. மீன், கோழி, சிகப்பு இறைச்சி, முட்டை, பால் பொருட்கள், வெண்ணெய், உலர்ந்த மீன்ஸ், நொறுக்கிய உருளைக்		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளரின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		கிழங்கு, பச்சை காய்கறிகள், பட்டாணி அவரை மற்றும் சோயா உணவுகளில் புரதச்சத்து அதிகமான அளவில் கிடைக்கின்றன.		
		கார்போஹைட்ரேட்		
		கார்போஹைட்ரேட் உடலின் ஆற்றலுக்கு ஆதாரமாக உள்ளது. புற்று நோயால் பாதிக்கப்பட்டு சிகிச்சை பெறும் பிள்ளைகளுக்கு 20% முதல் 90% வரை அதிக கலோரிகள் திசுக்கள் குணமடையவும் மற்றும் சக்தி பெறுவதற்கு தேவைப்படுகின்றது. பழங்கள், காய்கறிகள், முழு தானியங்கள், வைட்டமின்கள் மற்றும் தாதுக்களில் அதிக அளவில் கார்போஹைட்ரேட் உள்ளன.		
		கொழுப்பு		
		ஊட்டச்சத்தில் கொழுப்பு சத்தானது முக்கிய பங்கு வகிக்கின்றது. கொழுப்பு மற்றும் எண்ணெய் வகைகள் உடல் ஆற்றலுக்கு தேவையான கலோரிகள் நிறைந்தனவையாக உள்ளது. புற்று நோய் உள்ள பிள்ளைகளுக்கு தேவையான கொழுப்பு வகைகள் கீழே கொடுக்கப்பட்டுள்ளன: தாவர எண்ணெய்களான ஆலிவ் மற்றும் வேர்க்கடலை எண்ணெய்கள் நனைக்கப்படாத கொழுப்பு வகைகள் சார்ந்தவை. செந்தூரம், சூரியகாந்தி, நவதானியம் மற்றும்		

வ.எண்.	குறிப்பிட்ட குறிக்கோள்	பொருளடக்கம்	ஆராய்ச்சியாளின் செயல்பாடு	பொறுப்பாளரின் செயல்பாடு
		ஆளி விதைகள் ஆகியவை தொடர் நனைக்கப்படாத கொழுப்பு வகையை சார்ந்தவை. அவைகள் கடல் உணவில் முக்கியமாக காணப்படுபவை. நிறைவுற்ற கொழுப்புகள் (அல்லது நிறைவுற்ற கொழுப்பு அமிலங்கள்) விலங்கு ஆதாரங்களில் முக்கியமாக காணப்படுகின்றன. அவைகள் இறைச்சி, கோழி, முழு அல்லது குறைந்த கொழுப்புள்ள பால், பாலாடைக்கட்டி மற்றும் வெண்ணெயில் காணப்படுகின்றன.		
		தண்ணீர்		
		தண்ணீர் மற்றும் பானங்கள் உடல் நலத்திற்கு முக்கியமானவை. உடலில் எல்லா செல்களும் இயங்குவதற்கு தண்ணீர் அவசியமானது. குழந்தையானது தேவையான அளவு பானங்கள் எடுத்துக்கொள்ளாவிட்டாலோ அல்லது வாந்தி மற்றும் வயிற்றுப்போக்கிற்கு பிறகு உடலில் நீரின் அளவை இழந்தாலோ அவர்களுக்கு நீரிழப்பு ஏற்படுகின்றது. பிள்ளைகளுக்கு முக்கியமாக பழங்கள் மற்றும் காய் கறிகளிலிருந்து தேவையான அளவு நீர் கிடைக்கின்றது. அதிகபடியான நீராகாரங்கள் வாந்தி மற்றும் வயிற்றுப்போக்கு ஏற்பட்ட பிறகு தேவைப்படுகின்றது. புற்று நோய் உள்ள பிள்ளைகளுக்கு தேவையான அளவு நீராகாரங்கள் கிடைக்கா விட்டால் அவர்களுக்கு மலச்சிக்கல் ஏற்படுகின்றது.		

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<tr><th>வ.எண்.</th><th>குறிப்பிட்ட குறிக்கோள்</th><th>பொருளடக்கம்</th><th>ஆராய்ச்சியாளரின் செயல்பாடு</th><th>பொறுப்பாளரின் செயல்பாடு</th></tr>
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<tr><td></td><td></td><td>உடலுக்கு வைட்டமின்கள் மற்றும் கனிமங்கள் சாதாரணமாக வளர்ச்சிக்கும் மற்றும் செம்மையாக செயல்படுவதற்கும் தேவைப்படுகின்றன. உணவிலிருக்கும் சக்தி (கலோரி)யை உடலானது பயன்படுத்த வைட்டமின் மற்றும் கனிமங்கள் உதவுகின்றன. பச்சை காய்கறிகள் மற்றும் புதிய பழங்களில் வைட்டமின்கள் மற்றும் கனிமங்கள் காணப்படுகின்றன.
கீமோதெரப்பி மேற்கொள்ளும் குழந்தைகள் சரிவிகித உணவை எடுத்துக்கொள்வதன் மூலம் பொதுவாக ஏற்படும் பக்கவிளைவை தடுக்கலாம்.</td><td></td><td></td></tr>
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<table>
<tr><th>வ.எண்.</th><th>ஊட்டச்சத்து</th><th>பரிந்துரைக்கப்பட்ட ஒரு நாள் உணவு</th></tr>
<tr><td>1</td><td>புரதச்சத்து</td><td>80 கிராம்</td></tr>
<tr><td>2</td><td>கார்போஹைட்ரேட்</td><td>1400-2000 கலோரிகள்</td></tr>
<tr><td>3</td><td>கால்சியம்</td><td>100 மி.கி</td></tr>
<tr><td>4</td><td>இரும்பு</td><td>10 மி.கி</td></tr>
<tr><td>5</td><td>கொழுப்பு</td><td>40 – 50 கிராம்</td></tr>
<tr><td>6</td><td>தண்ணீர்</td><td>1 – 2 லிட்டர்</td></tr>
<tr><td>7</td><td>வைட்டமின் & கனிமங்கள்</td><td>400 மை.கி</td></tr>
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சுருக்கம்:

இது வரை நாம் கீமோதெரப்பியினால் ஏற்படும் சிக்கல்கள் மற்றும் அதனை கட்டுப்படுத்தும் முறைகள் பற்றி விவாதித்தோம்.

முடிவுரை:

மேலே கொடுக்கப்பட்டுள்ளவைகள் கீமோதெரப்பி மேற்கொள்ளும் குழந்தைகள் எதிர்கொள்ளும் சிக்கல்களாகும். அதனால் போதுமான மற்றும் சரியான படிப்பினை பாதுகாப்பாளர்களுக்கு கொடுப்போமேயானால் கீமோதெரப்பியினால் ஏற்படும் பக்க விளைவுகளை தடுத்து மற்றும் அதிக சிக்கல்கள் ஏற்படுவதை தவிர்க்க முடியும்.

CONCLUSION

These are the various chemotherapy complications the child would be having during the course of the treatment. So appropriate management helps in prevention of higher complication.

What Cancer Cannot Do

It cannot cripple Love. It cannot shatter Hope.

It cannot corrode Faith. It cannot destroy Peace.

It cannot kill Friendship. It cannot suppress Memories.

It cannot silence Courage. It cannot invade the Soul.

It cannot steal eternal Life. It cannot conquer the Spirit.

Live to Win!

Cancer is a word, not a sentence!!

Never, never, never give up!!!!

OMAYAL ACHI COLLEGE OF NURSING

PUZHAL

CHEMOTHERAPY COMPLICATION CONTROL PROTOCOL FOR CAREGIVERS OF CHILDREN WITH CANCER

BY

S.SRIMATHI

M. Sc NURSING

CHILD HEALTH NURSING

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CANCER

Cells are the basic building blocks of the body. Cells divide to make new cells to replace damaged or old cells.

The process of cells dividing and passing along genes is usually well controlled. Unfortunately, cells sometimes begin to grow and divide with little or no control. When that happens, they can destroy nearby healthy cells and invade different parts of the body. This is called cancer.

Childhood cancers can occur suddenly, without early symptoms, and have a high rate of cure. The most common children's cancer is leukaemia. Other cancers that affect children include brain tumours, lymphoma, and soft tissue sarcoma. Symptoms and treatment depend on the cancer type and how advanced it is. Treatment may include surgery, radiation and/or chemotherapy.

FACTS ABOUT CHILDREN'S CANCER

Each year, approximately 13,500 parents will hear the words "your child has cancer." Across all ages, ethnic groups and socio-economics, this disease remains the number one cause of death by disease in children. Despite major advances – from an overall survival rate of 10 percent just forty years ago to nearly 80 percent today, for many rare cancers, the survival rate is much lower. Furthermore, the number of diagnosed cases annually has not declined in nearly 20 years.

INCIDENTCE

- The Globally Childhood cancer 160,000 new cases/year, 90,000 deaths/year
- The South Asia Childhood cancer 14.9/100,000 new cases/year, 50% deaths/year

WATER

Water and liquids are vital to health. All body cells need water to function. If child does not take in enough fluids or loses fluids from vomiting or diarrhea, they may become dehydrated. Children get water from foods, especially fruits and vegetables. Extra fluids may be needed in case of vomiting or diarrhea.

The body needs vitamins and minerals for normal growth and development and to function properly. Vitamins and minerals also help the body to use up energy (calories) from food. Children with chemotherapy treatment should eat a balanced diet to prevent the common side effects.

VITAMINS AND MINERALS

Sl.No.	NUTRIENTS	RECOMMENDED DIETARY INTAKE PER DAY
1.	Protein	80 grams
2.	Carbohydrate	1400-2,000 calories
3.	Calcium	100 mg
4.	Iron	10 mg
5.	Fat	40-50 gms
6.	Water	1-2 ltr.
7.	Vitamins & Minerals	400 micro gms.

CARBOHYDRATES

Carbohydrates are the body's major source of energy. Children being treated with cancer may need 20% to 90% even more calories for tissue healing and energy.

The best sources of carbohydrates includes fruits, vegetables, whole grains, vitamins and minerals.

FATS

Fats play an important role in nutrition. Fats and oils serve as a rich source of energy (calories) for the body.

- **Monounsaturated fats** are found mainly in vegetable oils such as olive, and peanut oils.
- **Polyunsaturated fats** are found mainly in vegetable oils such as safflower, sunflower, corn, and flaxseed oils. They are also the main fats found in seafood.
- **Saturated fats** (or saturated fatty acids) are mainly found in animal sources, such as meat and poultry, whole or reduced-fat milk, cheese, and butter.

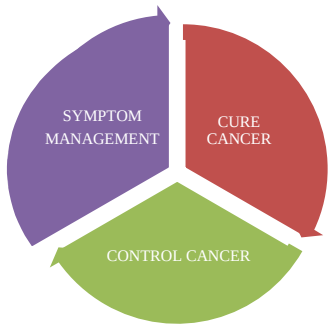
TREATMENT MODALITIES

CHEMOTHERAPY

Chemotherapy (also called chemo) is a cancer treatment which uses drugs to destroy cancer cells. Chemotherapy works by stopping or slowing the growth of cancer cells, which grow and divide quickly. But it can also harm healthy cells that divide quickly, such as those that line the mouth and intestines. Damage to healthy cells may cause side effects. Often, side effects get better after chemotherapy is over.

ACTION OF CHEMOTHERAPY

Depending on type of cancer and its advancement, Chemotherapy can:



USES OF CHEMOTHERAPY

Chemotherapy can make a tumor cells smaller before surgery or radiation therapy - NEO-ADJUVANT CHEMOTHERAPY

Chemotherapy can destroy cancer cells the remain after surgery or radiation therapy - ADJUVANT THERAPY

Chemotherapy destroy cancer cells that have reverted back (recurrent cancer) or spread to other parts of the body(metastatic cancer)

SELECTION OF CHEMOTHERAPY DRUGS

SELECTION DEPENDS UPON

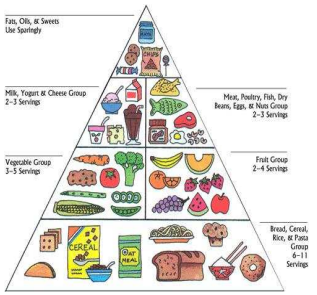
- THE TYPE OF CANCER
- ADMINISTRATION OF CHEMOTHERAPY BEFORE

NUTRITION FOR CHILDREN WITH CANCER

Nutrition is an important part of the health of all children. Especially important for children getting cancer treatment. Eating the right kinds of foods before, during, and after treatment can help a child feel better and stay stronger.

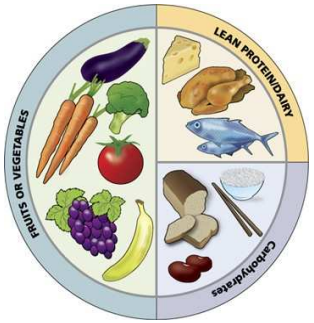
NUTRIENTS

Children with cancer need protein, carbohydrates, fat, water, vitamins, and minerals.



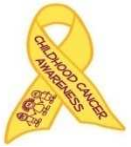
PROTEINS

The body uses protein to grow; repair tissues; and to maintain the skin, blood cells, the immune system, and the lining of the digestive tract. Children with cancer who do not get enough protein might break down muscle . This can make it longer to recover from illness and can lower resistance to infection. After a child has surgery, chemo, or radiation treatments, they may need extra protein to heal tissues and to help prevent infection.



Good sources of protein include fish, poultry, lean red meat, eggs, dairy products, nuts and nut butters, dried beans, smashed potato, green leaf vegetables peas and lentils, and soy foods.

WAYS TO MANAGE



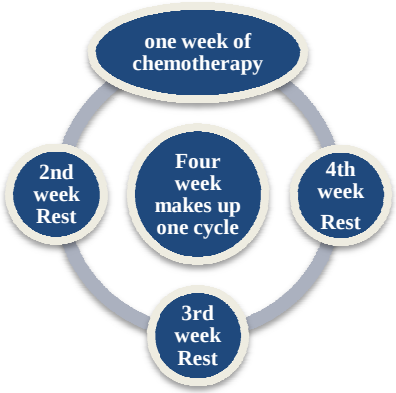
- Always use sun block lotion while going out.
- Avoid direct sunlight. Wear long-sleeved cotton shirts, hats, and pants while going out.
- When nails may become darkened, brittle, cracked, development of vertical lines or bands, consult a physician.

CHEMOTHERAPY IS ADMINISTERED AT

Chemotherapy is administered during a hospital stay, home, clinic, or outpatient unit in a hospital.

ADMINISTRATION OF CHEMOTHERAPY

Chemotherapy is given in cycles. A cycle is a period of chemotherapy treatment followed by a period of rest. For instance, 1 week of chemotherapy followed by3 weeks of rest. These 4 weeks make up one cycle. The rest period gives the body a chance to build new healthy cells.



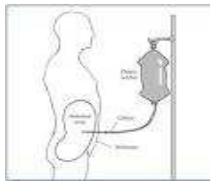
WAY'S OF ADMINISTERING CHEMOTHERAPY

Chemotherapy may be given in many ways.

- **INJECTION**. The chemotherapy is given in muscles of arms, thigh, hip and in subcutaneous fatty part of arms, legs or belly.

- **INTRA-ARTERIAL (IA).** The chemotherapy is given directly into the artery.

- **INTRAPERITONEAL (IP).** The chemotherapy is given directly into the peritoneal cavity (the area that contains organs such as intestines, stomach, liver, and ovaries).



- **INTRAVENOUS (IV).** The chemotherapy is given directly into veins(the common veins include Radial, Brachial and Jugular veins)

- **TOPICAL.** The chemotherapy drug in cream form is directly applied on to the skin.

- **ORAL.** The chemotherapy is given through oral route in form of tablets, capsules.

WAYS TO MANAGE

- **Drink plenty of water.**
- **Eat small meals and snacks.**
- **Take foods and drinks that are warm or cool (not hot or cold).**
- **Stay away from foods and drinks with strong smells.**
- **During the feel of vomiting, breathe deeply and slowly.**

11.SKIN AND NAIL CHANGES

Minor skin problems during chemotherapy include redness, itching, peeling, dryness, and acne. Chemotherapy drugs also make skin more sensitive to the sun.

✓ **AT TIMES OF MOUTH SORES**

- Select foods that are moist, soft, and easy to chew or swallow. These include cooked cereals, mashed potatoes, and scrambled eggs.
- Take small bites of food, chew slowly, and sip liquids while eating.
- Eat foods that are cool or at room temperature.
- Suck on ice chips to relieve mouth pain.

✓ **DO NOT EAT**

- Sharp or crunchy foods, such as crackers and potato or corn chips.
- Spicy foods, such as hot sauce, curry dishes and chilli.
- Citrus fruits or juices such as orange, lemon, and grapefruit.
- Food and drinks that have a lot of sugar, such as candy or soda.

10. NAUSEA AND VOMITING

Chemotherapy causes nausea, vomiting, or both. New drugs help to prevent nausea and vomiting. These are called antiemetic drugs. These drugs are taken one hour before each chemotherapy treatment for a few days.

SIDE EFFECTS

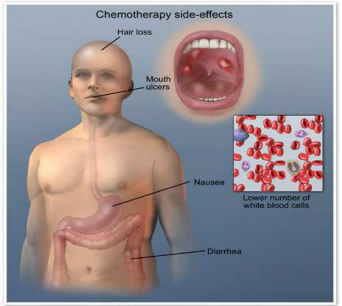
Side effects are problems caused by cancer treatment. Some common side effects due to chemotherapy include fatigue, nausea, vomiting, decreased blood cell counts, hair loss, mouth sores and pain.

CAUSES OF CHEMOTHERAPY SIDE EFFECTS

The cause of the side effects include destroying of healthy cells that lines the mouth, intestines and cells in bone marrow. Most side effects go after Chemotherapy is over. Sometimes, chemotherapy causes long-term side effects that do not go. These may include damage to heart, lungs, nerves, kidneys, or reproductive organs.

COMPLICATION OF CHEMOTHERAPY

- ✓ Anaemia
- ✓ Appetite Changes
- ✓ Bleeding
- ✓ Constipation
- ✓ Diarrhea
- ✓ Fatigue
- ✓ Hair Loss
- ✓ Infection
- ✓ Mouth and Throat Changes
- ✓ Nausea and Vomiting
- ✓ Skin and Nail Changes



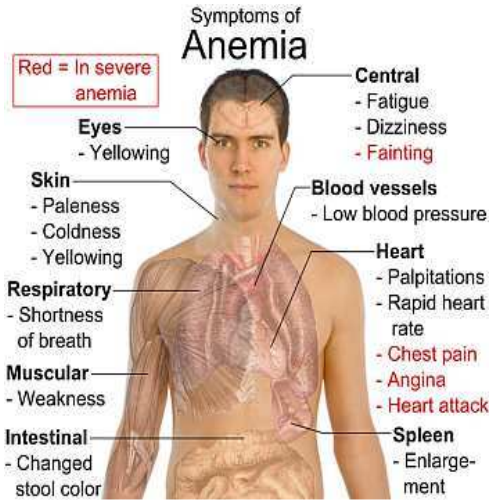
1. ANEMIA

NORMAL NUMBER OF RED BLOOD CELLS **RED BLOOD CELLS DURING ANEMIA**

Anaemia is a condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet physiological needs of the body.

Red blood cells carry oxygen throughout body. As the result of anaemia the body does not get enough oxygen. Anaemia can also make to feel short of breath, weak, dizzy, faint, or very tired. Chemotherapy causes anaemia because of destroying healthy cells at bone marrow to produce new red blood cells.

The normal Hb level for children includes 12 - 16gms/dl, PCV 37-47% RBC 3.8 - 5.5 million cells/volume. Blood transfusion is needed when the normal level goes down.



9. MOUTH AND THROAT CHANGES

Chemotherapy affects cells that lines mouth, throat, and lips. Common mouth and throat problem includes:

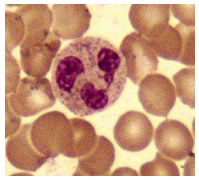
- Dry mouth
- Changes in taste and smell
- Infections of your gums, teeth, or tongue
- Increased sensitivity to hot or cold foods
- Mouth sores

WAYS TO MANAGE

- ✓ **Visit a dentist at least 2 weeks before starting chemotherapy.**
- ✓ **Check mouth and tongue every day:** For presence of mouth sores, white spots.
- ✓ **DO'S FOR HEALTHY ORAL HYGIENE**

- Brush teeth, gums, and tongue after each meal and at bedtime.
- Use an extra-soft toothbrush. Make the bristles even softer by rinsing the toothbrush in hot water before brushing.
- If brushing is painful, try cleaning teeth with cotton swabs.
- Use a fluoride toothpaste or special fluoride gel.
- Do not use mouthwash that has alcohol. Instead, rinse mouth 3 to 4 times a day with a solution of 1/4 teaspoon baking soda and 1/8 teaspoon salt in 1 cup of warm water.
- Gently floss teeth every day.

8. INFECTION



White blood cells help body to fight against infection. Chemotherapy makes it harder for bone marrow to produce new white blood cells.

WATCH FOR SIGNS OF INFECTION BY

- ✓ Check for fever at least once a day.
- ✓ Consult doctor or nurse if temperature is 100.5°F or higher.

WAYS TO MANAGE

- ✓ **Wash hands often with soap and water**
- ✓ **Stay away from people who are sick.** This includes people with colds, flu, measles or chicken pox.

- ✓ **Stay away from crowds.**
- ✓ **Be careful while handling with sharp objects.**
- ✓ **Maintain a good mouth care:** Brush teeth after meals and before going to bed. Use a very soft toothbrush. Use a mouth rinse that does not contain alcohol.

- ✓ **Take care of skin:** Do not squeeze or scratch pimples. Use lotion to soften and heal dry, cracked skin.

- ✓ **Wash raw vegetables and fruits well before eating them.**
- ✓ **Do not eat raw or undercooked fish, seafood, meat, chicken, or eggs.** These may have bacteria that can cause infection.

- ✓ **Do not have food or drinks that are spoiled.**

WAYS TO MANAGE

- ✓ **Take adequate rest:** sleep at least 8 hours each night.
- ✓ **Limit the activities:** carrying out activities which are of essential need.
- ✓ **Eat a well-balanced diet.** Choose a diet that contains all the calories and protein according to the body needs. Calories will help to keep the weight up, and extra protein can help in repair of tissues that have been harmed by cancer treatment. The diet includes intake of Iron -Rich Food like iron fortified whole grains, cereals, breads, rice, greens, including collard greens, mustard greens, spinach, vegetables, egg yolks, dried fruits, such as dates.

- ✓ **Stand up slowly:** When getting up from lying down position, sit for a minute before standing because of dizziness.
- ✓ **Check the blood cell count throughout the chemotherapy:** A blood transfusion is needed when the red blood cell count falls below 100 mmol/lit.

2. APPETITE CHANGES

Chemotherapy can cause appetite changes because of nausea, mouth and throat problems or drugs that change the taste of the food. The changes can also come from feeling depressed or tired. Appetite loss may last for a day, for few weeks, or even months.

It is important to eat a well balanced diet which includes plenty of protein, vitamins, and calories. Eating a good diet helps the body to fight against infection and repair tissues that are damaged by chemotherapy. Not eating well can lead to weight loss, weakness, and fatigue.

WAYS TO MANAGE

- ✓ **Eat 5 to 6 small meals or snacks each day instead of 3 big Meals.**
- ✓ **Set a daily schedule for eating meals and snacks:** Eat when it is time to eat, rather than eating at times of hungry.

- ✓ **Drink more of milkshakes, juice, or soup than eating solid foods:** Liquids help in providing the essential protein, vitamins, and calories according to the body needs.

- ✓ **Use plastic forks and spoons:** Some types of chemotherapy drugs gives a metal taste in mouth. Eating with plastic spoon can help in decreasing the metal taste and also helps in prevention of injury to the mouth during the presence of oral ulcers.

3. BLEEDING

Platelets are cells that make the blood to clot when bleeding occurs. Chemotherapy can lower the number of platelets because of destroying healthy cells at the bone marrow to produce RBC. A low platelet count is called thrombocytopenia. This condition may cause bruises which are rash of tiny, red dots all over the body. The normal platelet count include 1.5 – 4 lakhs cells/cu.mm

7. HAIR LOSS

Hair loss (also known as alopecia) is when all hair falls out. This can happen anywhere on the body: head, face, arms, legs, underarms, or the pubic area between legs. Hair loss often starts 2 to 3 weeks after chemotherapy begins. It takes about 1 week for all hairs to fall out. Almost hair will grow back 2 to 3 months after chemotherapy is finished.

WAYS TO MANAGE

- ✓ **Be gentle during hair washing:** Use a mild baby shampoo and dry the hair by patting (not rubbing) it with a soft towel.
- ✓ **Do not use items that can harm the scalp:** These include:

• Straightening or curling irons
• Brush rollers or curlers
• Electric hair dryers
• Hair bands and clips
• Hairsprays
• Hair dyes

AFTER HAIR LOSS

- ✓ **Protect scalp**
  - ▪ By wearing a hat, turban, or scarf while going outside.
  - ▪ Try to avoid going places that are very hot or very cold.
  - ▪ Always apply sunscreen or sun block to protect the scalp.

- ✓ **Stay warm.**
- ✓ **Sleep on a satin pillow case.** Satin creates less friction on the scalp.

6. FATIGUE

Fatigue is a feeling of weak, weary or slow. Fatigue last for weeks or months after chemotherapy is over. If children receive both radiation therapy along with chemotherapy, fatigue may be more severe.

Fatigue can also be caused due to:

- ✓ Anaemia
- ✓ Pain
- ✓ Medications
- ✓ Appetite changes
- ✓ Lack of activity
- ✓ Trouble breathing
- ✓ Infection

WAYS TO MANAGE

- ✓ **Try not to do heavy works:** Do quiet activities, such as reading books, listen to music or hearing new songs on tape.
- ✓ **Sleep at least 8 hours each night.**
- ✓ **Plan daily activity and work.**
- ✓ **Keep a diary of work list.**
- ✓ **Eat a well balanced diet.**

WAYS TO MANAGE

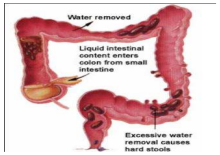
Do:

- ➢ Brush teeth with a very soft toothbrush.
- ➢ Soften the bristles of toothbrush by running it on hot water before brushing.
- ➢ Blow nose gently.
- ➢ Play sports or do other activities without getting hurt.
- ➢ Be careful when using sharp objects.
- ➢ Apply gentle but firm pressure to any cuts until the bleeding stops.
- ➢ Wear shoes all the time, even inside the house or hospital.

DO NOT:

- ➢ Use dental floss or toothpicks.
- ➢ Wear clothes with tight collars, wrists, or waistbands.

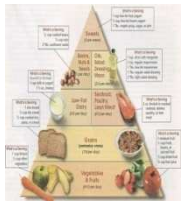
4. CONSTIPATION



Constipation occurs when bowel movements become less frequent and stools are hard, dry, and difficult to pass. Children with constipation may belch, pass a lot of gas, and have stomach cramps or pressure in the rectum. Constipation can also occur due to eating foods that are low fibre diet and drinking less water.

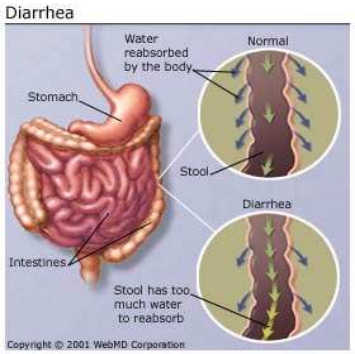
WAYS TO MANAGE

- ✓ **Keep a record of bowel movements.**
- ✓ **Drink at least 8 glasses (1-2 litre) of water and fluids each day:** Drink more of water when eating fibre diet. Daily diet should include more of green leafy vegetables, beans, carrot, banana, orange, pineapple, dates.
- ✓ **Be active every day**: By doing activities like walking, riding a bike, doing yoga. If walking is not possible learn exercise which can be done in bed.



5.DIARRHEA

Diarrhea is frequent passage of soft, loose, or watery stool. Chemotherapy leads to diarrhea because of destroying healthy cells that lines large and small intestines. Diarrhea can also be caused by infections or drugs used to treat constipation.



WAYS TO MANAGE

- ✓ **Eat 5 or 6 small meals and snacks each day instead of 3 large meals.**
- ✓ **Eat food items that are high in salts such as sodium and potassium (ORS preparation):** The body can lose salts during diarrhea so, it is important to replace them. Foods which can be consumed include bread, tea, Rice kanji, coconut water, lime & oranges Juice
- ✓ **Drink 8 glasses (1-2 litre) of clear liquids each day.**
- ✓ **Be gentle when you wipe after a bowel movement:** use a baby wipe or water from a spray bottle to clean after bowel movements to prevent skin irritation.

DO NOT TAKE

- Drinks that are very hot or very cold.
- Milk or milk products, such as ice cream, milkshakes, sour cream, and cheese.
- Spicy foods, such as hot sauce, chilli, and curry dishes.
- Foods or drinks with caffeine, such as regular coffee, cola, and chocolate.
- Foods or drinks that cause gas, such as cooked dried beans.
- Foods that are high in fibre, such as cooked dried beans, raw fruits and vegetables, nuts, and whole-wheat breads and cereals.

உமையாள் ஆச்சி செவிலியர் கல்லூரி

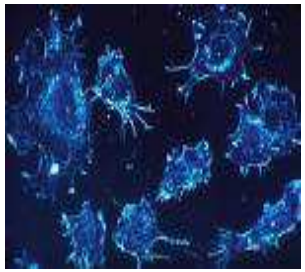
புழல், சென்னை

புற்றுநோயால் பாதிக்கப்பட்ட குழந்தைகளை

பாதுகாப்பவருக்கான வேதிச் சிகிச்சையின் சிக்கல் நிலையை

கட்டுப்படுத்தும் மூலக்குறிப்புகள்

புற்றுநோய்:



புற்றுநோய் உடலில் உள்ள கட்டுமான செல்களை அழிக்க தொடங்குகின்றது. நமது உடலில் தினந்தோறும் பல புதிய செல்கள் உருவாகின்றன. இது சில நேரங்களில் அதிகப்படியாக உருவெடுத்து பழைய மற்றும் புதிய செல்களை அழிகின்றன. அதுமட்டும் இல்லாமல் புதிய செல்கள் ஒரு கட்டியாக உருவெடுத்து உடல் முழுவதும் பரவுகின்றன. இதுவே புற்றுநோய் எனப்படுகின்றது.

குழந்தைகள் முதல் பெரியவர்கள் என அனைவரையும் இந்நோய் தாக்குகின்றது. சராசரியாக ஆண்டு ஒன்றிற்கு 13500 பெற்றோர்கள் தங்கள் குழந்தைகளுக்கு புற்றுநோய் உள்ளதாக செய்திகளை கேட்கின்றன. பொதுவாக குழந்தைகளை தாக்கும் புற்றுநோய் லுகேமியா, மூளை புற்று, லிம்போமா மற்றும் மென்மையான திசு புற்று ஆகும்.

கொழுப்பு சத்து:

எண்ணெய் மற்றும் கொழுப்பு உணவு உடலுக்கு அதிக சக்தியை கொடுக்கின்றது.

மூல ஆதாரம்: எண்ணெய் வித்துக்கள், பால், பாலாடை மற்றும் வெண்ணெய்.

தண்ணீர்:

புற்றுநோயால் பாதிக்கப்பட்ட குழந்தைகளுக்கு அதிக தண்ணீர் தேவைகள் வாந்தி மற்றும் வயிற்று போக்கின் போது ஏற்படுகின்றது.

மூல ஆதாரம்: குழந்தைகள் அதிகப்படியான தண்ணீர் சத்தை காய்கறி மற்றும் பழங்களில் இருந்து பெறுகின்றார்கள்.

வைட்டமின் மற்றும் கனிமச் சத்து:

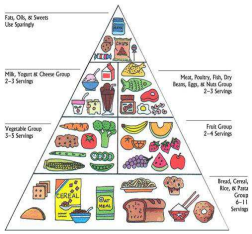
உடற் வளர்ச்சிக்கு வைட்டமின் மற்றும் கனிம சத்து அவசியமாகின்றன. இதுவே உடலுக்கு அதிக சக்தியை கொடுக்கின்றன.

மூல ஆதாரம்: பச்சை இலைகளுடன் உள்ள காய்கறிகள், பப்பாளி, மாம்பழம் மற்றும் ஆரஞ்ச் பழம்.

வ.எண்.	சத்துக்கள்	தினசரி தேவையான அளவு
1.	புரதம்	80 grams
2.	மாவுச்சத்து	1400-2,000 calories
3.	கால்சியம்	100 mg
4.	இரும்பு சத்து	10 mg
5.	கொழுப்பு சத்து	40-50 gms
6.	தண்ணீர்	1-2 ltr.
7.	வைட்டமின் (ம) தாதுஉப்புகள்	400 micro gms.

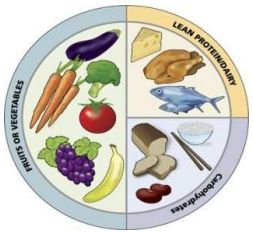
புற்றுநோய் உள்ள குழந்தைகளுக்கான ஊட்டச்சத்து உணவுகள்

ஊட்டச்சத்து புற்றுநோயுள்ள குழந்தைகளுக்கு மிக முக்கியமானதாகும். நல்ல ஊட்டச்சத்து கொண்ட உணவை குழந்தைகள் வேதிச் சிகிச்சையின் ஆரம்பம் முதல் இறுதி வரை உட்கொள்ளுதல் அவசியமான ஒன்றாகும். புற்றுநோயுள்ள குழந்தைகளுக்கு தேவைப்படும் சத்துக்கள் புரதச் சத்து, கார்போஹைட்ரேட், கொழுப்பு சத்து, தண்ணீர், வைட்டமின் சத்து & கனிமச் சத்து.



புரோட்டீன்/புரதம்:

புரதச் சத்து குழந்தைகளின் வளர்ச்சி, திசு பழுதுபார்த்தல் மற்றும் தோல், இரத்த அணுக்களில் நோய் எதிர்ப்பு சக்தி உருவாக பயன்புரிகின்றது. வேதிச் சிகிச்சையின் போல பல ஆரோக்கியமான உடல் செல்கள் அழிக்கப்படுவதால் உடலில் போதிய புரதச்சத்து இல்லாமல் குறைகின்றது. அதனால் நோய் தொற்று அபாயம் அதிகமாகின்றது.



மூல புரத ஆதாரம்: மீன், கோழி, இறைச்சி, முட்டை, பால், வெண்ணெய், பீன்ஸ், பட்டாணி மற்றும் சோயை பொருட்களில் கிடைக்கின்றன.

கார்போஹைட்ரேட்/மாவுச்சத்து:

நம் உடலில் ஒரு இன்றியமையாத சக்தியை கொடுப்பது மாவுச்சத்து பொருட்கள் ஆகும். புற்றுநோயால் பாதிக்கப்பட்ட குழந்தைக்கு 20 முதல் 90% அதிக மாவுச் சத்து உணவு தேவைப்படுகின்றன.

மூல ஆதாரம்: பழம், காய்கறிகள், முழு தானியங்கள், உயிர்ச்சத்து மற்றும் கனிமங்களில் இருந்து கிடைக்கின்றன.

வேதிச் சிகிச்சை என்றால் என்ன?:

வேதிச் சிகிச்சை என்பது புற்றுநோய் செல்களை மருந்து கொண்டு அழிக்கும் முறையாகும்.

வேதிச் சிகிச்சையின் உபயோகங்கள்:–

- சில நேரங்களில் புற்றுநோய் சிகிச்சைக்கு மட்டுமே பயன்படுகின்றது.
- அறுவை சிகிச்சை மற்றும் கதிரியக்க சிகிச்சைக்கு முன் ஒரு கட்டியை சிறிது செய்ய பயன்படுகின்றது.
- ஒரு புற்றுநோய் செல்கள் மீண்டும் வராமலும், மற்றும் இதர இடங்களுக்கு பரவாமல் இருக்கவும் இது பயன்படுகின்றது.

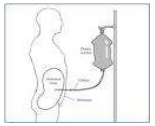
வேதிச் சிகிச்சை கொடுக்கும் முறை:

வேதிச் சிகிச்சையை சுழற்சி முறையில் கொடுக்கின்றன. இந்த முறை 4 வாரங்கள் அடங்கியதாகும். முதல் வாரத்தில் மருந்து கொடுத்தால் மற்ற 3 வாரங்களுக்கு ஓய்வு தரப்படும். இதுவே ஒரு சுழற்சி ஆகும். இவ்வாறு ஆறு சுழற்சிக்கு மருந்துகள் கொடுக்கப்படுகின்றன.

வேதிச் சிகிச்சை மருந்து கொடுக்கும் முறை:

- ஊசி முறை.

- இன்ட்ரா ஆர்டீரியல் முறை.



- இன்ட்ரா பெரிடோனியல் முறை.

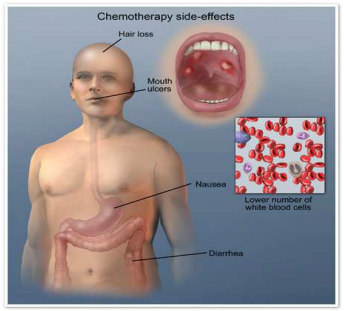
- இன்ட்ரா வீனஸ்.

- டாபிகல்.

- ஓரல்.

பக்க விளைவுகள்:

பக்க விளைவுகளுக்கான காரணம்; புற்றுநோய் செல்கள் ஆரோக்கியமான உயிரணுக்களை அழிப்பதுவே ஆகும். அதிகப்படியாக பாதிக்கப்படும் செல்கள் வாய், குடல் மற்றும் எலும்பு மஜ்ஜையில் உள்ளவை ஆகும்.



10. வாந்தி மற்றும் மயக்கம்:

வாந்தி மற்றும் மயக்கம் வேதிச் சிகிச்சையின் போது பொதுவாக ஏற்படும் பக்கவிளைவுகள்.

கட்டுப்படுத்தும் வழிகள்:

- தண்ணீரை அதிகமாக அருந்துதல்.
- கொஞ்சமாக உணவு உட்கொள்ளுதல்.

- அதிக மணம் உள்ள பொருட்களிடமிருந்து விலகி இருத்தல்.
- வாந்தி மற்றும் மயக்கம் வரும் வேலையில் சீராக மூச்சை சுவாசித்தல்.

11. தோல் மற்றும் நக மாற்றங்கள்:

வேதிச் சிகிச்சையின் போது தோல் உரிதல், அரிப்பு, தோல் உலர்ந்து காணப்படுதல் போன்ற மாற்றங்கள் ஏற்படும்.

கட்டுப்படுத்தும் வழிகள்:

- சன் லோஷன் உபயோகித்தல்.
- மெலிந்த பருத்தி ஆடைகளை அணிதல்.
- தோல் மற்றும் நக மாற்றங்கள் ஏற்படும் போது தகுந்த மருத்துவதை அணுகுதல் வேண்டும்.

9. வாய் மற்றும் தொண்டையில் ஏற்படும் மாற்றம்:

வாய் மற்றும் தொண்டையில் ஏற்படும் மாற்றங்களுக்கு புற்றுநோய் செல்களே காரணம். புற்றுநோய் செல்கள் வாய், உதடு மற்றும் தொண்டையில் உள்ள செல்களை அழிப்பதினால் ஏற்படுகின்றது.

அறிகுறி:

- காய்ந்த வாய் மற்றும் உதடு.
- நோய் தொற்று
- வாய்ப்புண்

- சுவை மாற்றங்கள்
- உணவு உண்ணுதலின் மாற்றம் மற்றும் சிரமம்.

கட்டுப்படுத்தும் வழிகள்:

- சிகிச்சை ஆரம்பிக்கும் முன் பல் மருத்துவரிடம் ஒருமுறையாவது காண்பித்தல் வேண்டும்.
- தினந்தோறும் வாய் மற்றும் நாக்கை சோதனை செய்தல் வேண்டும்.

வாய் தொற்று வராமல் பராமரிக்கும் முறை:

- ஒவ்வொரு முறை சாப்பிட்டபின்பும் வாயை நன்றாக கழுவுதல் வேண்டும்.

- மெலிந்த தூரிகை கொண்டு பல்துலக்க வேண்டும்.
- புளோரைடு உள்ள பற்பசையை உபயோகிக்கவேண்டும்.

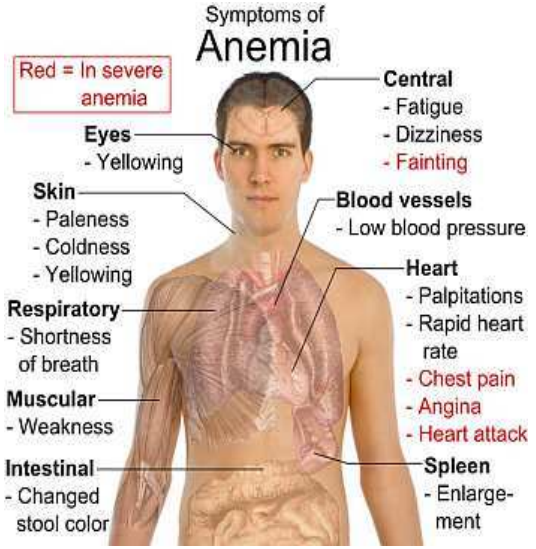
- உப்பு தண்ணீரால் வாய் கொப்பளிக்க வேண்டும்.

1. இரத்தசோகை:

இரத்தசோகை உடலில் உள்ள சிவப்பணுக்களின் குறைவினால் ஏற்படுகின்றது.

சிவப்பணுக்கள் உடல் முழுவதும் ஆக்சிஜனை (பிராண வாயு) எடுத்து செல்கின்றன. இதன் குறைப்பாட்டால் உடலின் ஆக்சிஜன் தேவைக்கு பற்றாக்குறை ஏற்படுகின்றது. இதனால் ஒருவருக்கு மூச்சு இறுகிய எண்ணம், பலவீனம், மயக்கம், சோர்வு ஏற்படுகின்றன. இதன் காரணம் புற்றுநோய் செல்கள் எலும்பு மஜ்ஜையை தாக்கி சிவப்பணு உற்பத்தியை குறைப்பதுவே ஆகும்.

சரியான ஹிமோகுளோபின் அளவு: *12-16*gms per dl, பிசிவி 37-47%, இரத்த சிவப்பணு *3.8-5.5* மில்லியன் செல்கள். இந்த சரியான விகிதத்தில் இல்லாத பட்சத்தில் இரத்தம் ஏற்ற வேண்டும்.



கட்டுப்படுத்தும் முறை:

- அதிக/போதுமான வரை ஓய்வெடுத்தல்.
- குறைந்த வேலைகளை செய்தல்.

- சத்துள்ள உணவை உட்கொள்ளுதல். அதில் போதுமான அளவு இரும்பு சத்துள்ள உணவான காய்கறி, பழம், பேரீச்சை, கீரை வகைகளை சேர்த்துக் கொள்ளுதல்.

- மெதுவாக நிற்பது.

- இரத்த சிவப்பணு எண்ணிக்கையை தொடர்ந்து வேதிச்சிகிச்சை முழுவதும் கவனித்தல்/சரிபார்த்தல்

இரத்த ஏற்றம் சிவப்பணு எண்ணிக்கை 100mmol/1-க்கு குறைந்தால் தேவைப்படும்.

2. பசியின்மை:

வேதிச் சிகிச்சை பசியின்மை நிலைமையை ஏற்படுத்தக் காரணம்; வாய், தொண்டையில் உள்ள மாற்றங்கள் மற்றும் மருந்து உட்கொள்வதால் வருவதே ஆகும். பசியின்மை ஒருவருக்கு ஒரு நாள், ஒரு வாரம் மற்றும் ஒரு மாதம் வரை இருக்கும்.

கட்டுப்படுத்தும் முறை:

- ஒரு நாள் ஒன்றுக்கு 5 முதல் 6 முறை சிறிது சிறிதாக உணவு உட்கொள்ள வேண்டும்.
- உணவு அட்டவணையை பின்பற்ற வேண்டும்.

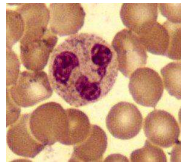
- சன்ஸ்கீரின் லோஷன் உபயோகிக்கவும்.

வெளியில் செல்லும் போது தலைக்கவசம் அணிந்து செல்ல வேண்டும்





8. நோய்தொற்று:



உடலில் உள்ள வெள்ளை அணுக்களின் குறைப்பாட்டால் ஏற்படுகின்றன.

நோய் தொற்றை கண்டறியும் முறை/கட்டுப்படுத்தும் வழிகள்:

- தினந்தோறும் உடல் வெப்பத்தை கண்டறிதல் வேண்டும்.
- உடல் வெப்பம் 100.5°Fமேல் சென்றால் மருத்துவரின் ஆலோசனைகளை பெறவும்.

- கைகளை சுத்தமாக வைத்துக் கொள்ளுதல் வேண்டும்.

- நோய் தொற்று உள்ளவரிடம் இருந்து சற்று விலகியே இருத்தல் நல்லது.

- அதிக கூட்டமுள்ள பகுதிகளுக்கு செல்வதை தவிர்த்தல் வேண்டும்.

- சுத்தமான வாய் பராமரிப்பு முறையை கடைப்பிடித்தல் வேண்டும்.
- தோல் பராமரிப்பு மிகவும் அவசியம்.

- காய்கறி, பழங்களை சாப்பிடும் முன் நன்றாக சுத்தப்படுத்திய பின் சாப்பிடுதல் வேண்டும்.

- மீன், கறி, கோழி ஆகிய அசைவ உணவு வகைகளை சாப்பிடுதலை தவிர்த்தல் வேண்டும்.

6. சோர்வு:

உடலில் உள்ள ஆரோக்கியமான செல்கள் அழிவதினால் உடற்சோர்வு ஏற்படுகின்றது. அதுமட்டுமல்லாமல் இரத்தசோகை, வலி, மருந்துகள் எடுத்துக் கொள்வது, பசியின்மை, நோய்தொற்று ஏற்படுகின்றது.

போக்கும் வழிகள்:

- அதிகப்படியான வேலைகளை செய்யாதிருத்தல்.

- குறைந்தது 8 மணி நேரமாவது உறங்குதல்.

- அன்றாட வேலைகளை கணக்கிட்டு செய்தல்

- நல்ல சத்துள்ள உணவை உட்கொள்ளுதல்.

7. தலை வழுக்கை / முடி கொட்டுதல்:

வேதிச் சிகிச்சை ஆரம்பித்த 2 முதல் 3 வாரங்களில் முடி உதிர்வது தொடங்குகின்றது.

கட்டுப்படுத்தும் வழிகள்:

- குழந்தைகளுக்கு மிருதுவான சாம்பு பயன்படுத்தவும்.
- அதிக வெப்பம் மற்றும் குளிர் சார்ந்த இடங்களுக்கு போவதை தவிர்க்கவும்.

- தண்ணீர், பழரசம், சூப் போன்ற நீர் ஆகாரங்களை அதிக அளவு அருந்துதல் நன்மையை தரும்.

- பிளாஸ்டிக் போக் அல்லது கரண்டியை சாப்பிட பயன்படுத்த வேண்டும்.

3. இரத்தபோக்கு:

உடலில் இரத்த தட்டுகள் என்னும் செல்கள் அதிக இரத்தப் போக்கை கட்டுப்படுத்த உதவி புரிகின்றன. வேதிச் சிகிச்சையின் போது இந்த செல்களின் அளவு மிகவும் குறைந்து விடுகின்றன. அதனால் தான் இதிக இரத்தப் போக்கு உடலில் காணப்படுகின்றன. காயம் ஏற்பட்டு இரத்தப் போக்கு வந்தால் அந்த இடத்தில் சீரான அழுத்தம் கொடுக்க வேண்டும்.

பின்பற்ற கூடியவை:

- மிகவும் மெலிதான பல்துலக்கியை பயன்படுத்தவேண்டும்.

- மெதுவாக தும்முதல் வேண்டும்
- விளையாடும்பொழுது அடிபடாமல் விளையாட வேண்டும்.

- இரத்த வெளியேறும் இடத்தை நன்றாக அழுத்திபிடிக்க வேண்டும்.

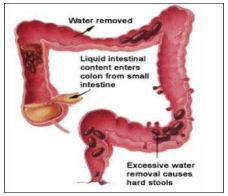
- காலணிகளை எப்பொழுதும் உபயோகிக்க வேண்டும்

பின்பற்ற கூடாதவை:

- பல்குச்சி உபயோகப்படுத்தக்கூடாது.

- இருக்கமான உடைகளை அணிவிப்பதை தவிர்க்கவேண்டும்.

4. மலச்சிக்கல்:



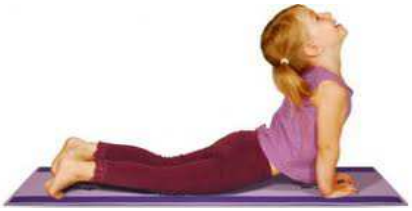
போதுமான அளவு தண்ணீர் மற்றும் நார்சத்துள்ள உணவுகளை உட்கொள்ளாதபோது ஏற்படுகிறது. ஆகவே போதுமான அளவு தண்ணீரும், நார்சத்துள்ள உணவுகளை உட்கொள்வதால் மலச்சிக்கலை தவிர்க்கலாம்.

கட்டுப்படுத்தும் வழிகள்:

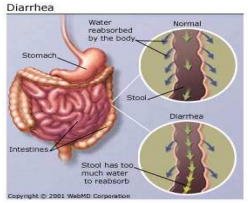
- அட்டவணை பின்பற்ற வேண்டும்.

- *1-2* லிட்டர் தண்ணீர் அருந்தவேண்டும்.
- அன்றாட உணவுமுறையில் கீரைகள், காய்கறிகள் (பீன்ஸ், கேரட்), பழங்கள் (வாழைப்பழம், ஆரஞ்ச், பேரீட்சை) ஆகியவற்றை சேர்த்துக் கொள்ள வேண்டும்.

- யோகாசனம், நடைபெயர்ச்சி, உடற்பயிற்சி போன்றவற்றை மேற்கொள்ள வேண்டும்.



5. வயிற்று போக்கு:



புற்றுநோய் செல்கள் குடலில் உள்ள ஆரோக்கியமான செல்களை தாக்கும்பொழுது வயிற்று போக்கு ஏற்படுகின்றது. அதுமட்டுமின்றி நோய் தொற்றின் போதும் வயிற்று போக்கு ஏற்படுகின்றது.

போக்கும் வழிகள்:

- *5* முதல் *6* முறை சிறிது சிறிதாக உணவு எடுத்துக் கொள்ளுதல்.

- ORS தயாரித்து சாப்பிடவேண்டும்.

- நீர் ஆகாரம் (கஞ்சி, இளநீர், டீ, பழரசம்)
- *1-2* லிட்டர் தண்ணீர் அருந்தவேண்டும்.
- ஒவ்வொரு மலம் கழித்தபின் மெல்லிய டயாபரை கொண்டு சுத்தம் செய்யவேண்டும்.

மேற்கொள்ள கூடாதவை:

- கார உணவு.

- காபி, பால் பொருட்கள்.

- வறுத்த உணவு.

PHOTOGRAPHS

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